





(1860-1868)

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The "American Entomologist."

ROCK ISLAND, ILLS.



Peach maffot J. p. 69

— beetle J. p. 66

Squirrels caracorum J. pp. 56. 32. 187

Transformation delayed a season p. 143 (many cases in *Stainton*)  
odonatous anns p. 150

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1861 commences page 9.

1862 ————— 25

1863 ————— 41

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1865 ————— 141

1866 ————— 184

(concluded Vol. II. p. 15.)

Vol. II.

1867 commences page 16.

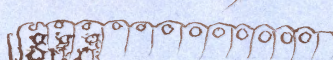
## Journal of Facts in Natural History

From Prof. Owen's Address Brit. Assn. in  
Silliman's Journal Nov. '58

"Von Siebold, having subjected to the closest  
microscopic scrutiny & experiment the conclusion  
to which the practical bee-master Dzierson  
had arrived, relative to the cause of queen  
bees with 'crippled wings' producing a swarm  
exclusively of drones, has demonstrated  
that the male bee is produced from an  
egg which has been subjected to no influence  
save that of the maternal parent; while  
such egg, if impregnated, would have  
produced a female or 'working' bee. The  
now well investigated phenomena of  
parthenogenesis in *Hydrozoa* have resulted  
in shewing, as in the analogous case of  
*Eutrozoa*, that animals differing so much  
in form as to have formed 2 distinct  
orders or classes, are really but 2 terms  
of a cycle of metagenetic transformations,  
— the acalephan *Medusa* being the sexual  
locomotive form of the agamic rooted budding  
polyp, just as the cestoid *Tenia* is of  
the cystic hydatid.



2) *Stabilecida* non sunt genera instrumentorum  
cubitorum cujusdam discriminis ratione, sed  
cum differentia illa majores sunt, et cum  
generis scissorem necessitas postulat, et  
specierum, verigratia, nimiam multiplicatam  
Fabr. G. cr. III. 61

Larva feeding on pith of wild aster - *Tenthredo*? -  
length  $\frac{3}{4}$  inch - head black - six very short  
tuberculous legs, hairy - a double row of smooth  
tubercle-like processes on each side & on each  
segment of the body, but the last, extending  
above the true legs.  General

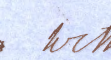
color dirty white - semitransparent. *Larva all died*  
*Dytiscus* <sup>Harrisii</sup> 1.4 to 1.6 long. Differs from *verticalis* (Say),  
in the following respects: - vertex (in front) not  
punctured - 4 large yellow patches on postpectus -  
Thorax margined before & behind with yellow -  
posterior sternum more dilated.

*Hydrophilus* 1. (smaller) - thighs & 4 head tibiae fasciate  
with rufous - anterior metasternum nearly straight  
*Hydrophilus* 2. (larger) <sup>glabrous</sup> front tips of thighs <sup>white</sup> or white  
with rufous - anterior metasternum strongly  
turned up.

From Dr. Kirtlands paper, Cleveland Trans. - "*Calydrius Subile* -  
This large & nearly pure yellow colored butterfly, never reaches  
the northern extremity of Ohio - at Cincinnati it occurs  
in great numbers; but only, as it is said, in the fore  
part of summer."

Ibid. "*P. Marcella*, resembles *Ajan*, but differs in  
having only one red spot on the inner margin of the  
posterior wings."

Larva of *Helophilus*? or *Crustalis*? found March 15. 60  
under bark of old oak stump, remote from water.

Larva (closely resembling larva of *Helophilus* figured  
Westw. Inscr. II. 558 fig 131.7) .35 long, exclusive of tail  
which is over .4 long. Color dirty light brown. Process inserted  
from tail .15 long: 14 tubercular feet, furnished with <sup>4 or 5</sup> ~~spines~~ <sup>hooks</sup>,  
the 1st pair placed close to mouth & further from the 2nd  
pair than the others are from each other. A cuffed anal  
process, with the appearance of two tubercular feet close  
together immediately in front of it, which however have no  
spines. Mouth apparently 4 tubercles  with a cavity in  
the middle. A pair of short antennae above & a pair  
of very indistinct tubercles on top of 3rd segment (2nd  
from head) a row of 7 <sup>simple</sup> tubercles each side beneath, 1st oppo-  
site 2nd pair of feet, last opposite anal pair of tubercles.  
No vestige of eyes -



4) Pupa <sup>some 20 of them being found in company with it</sup> supposed to be of ditto. — Length .4 exclusive of tail, which is .05 long. Closely resembles fig. 5 of Westwood (ubi supra.) except that dorsal process, are merely 2 short nipples (—) On each side of head above, on anterior edge, are two distinct shiny <sup>pointed</sup> horny hooks, black, ~~as in~~ with the antennae as in larva, but shorter. On top of 3<sup>rd</sup> segment another pair of similar tubercles. Tail <sup>(a)</sup> (a) shiny & horny, of a light mahogany color, anal (b) part of abdomen, being dirty opaque brown, marked with <sup>as well as the tail</sup> irregular transverse interrupted dark <sup>oblique</sup> lineations. Feet as in larva, but lateral tubercles & anal process ~~are~~ none. Mouth two tubercles, with a hole between.

[Now if this be a "Coarctate" <sup>pupa</sup> larva, how come the horny hooks to the head ??? of which there is no vestige whatever in the larva. — Mistake.]

The Pupa attaches itself by its tail to the rotten wood, & a pair that I obtained, fall 1859, adhere so closely to a glass bottle, that I cannot remove them without injury.

The tail of larva ~~is~~ can scarcely be intended for respiration, as is said to be the case with similar aquatic larvae. (Westw. ubi supra.)

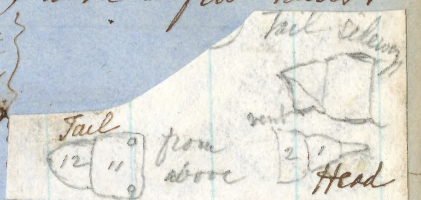
Cic. bono? <sup>a Dytiscid</sup> (Costen-Sacken) [had plenty of them] Spring 1861  
to pupa, larva like pupa but longer

March 28. 1860. Found two larvae (dipterous?) in fibrous debris inside the hollow of a felled & hollow <sup>soft</sup> maple. Length  $1\frac{1}{2}$  to  $1\frac{3}{4}$ . Breadth  $\frac{5}{16}$ . Segments 12, exclusive of head. Head mahogany brown, <sup>pointed</sup> & pointed: nearly entirely contractile, with a few hairs. A brown spiracle each side of penultimate segment above. Body somewhat depressed, <sup>or rather laterally expanded,</sup> whey-colored, with the appearance, even to the naked eye, of irregular patches of white eggs over nearly half the surface, except the 1<sup>st</sup> & 2<sup>nd</sup> & partially the 3<sup>rd</sup> segment. The skin between most of the middle segments below is contractile & furnished with tubercles (in place of legs?) which entirely disappear at the end of the animal.

Placed larvae in large tin pail. In July 1861 found larva pupa skin in pail, perhaps *Midas filatus* (see Harris). — June or July, 1861 as *Midas* (and the yellow species also)

Found this winter <sup>Polistes</sup> *rodynurus* *fasciatus* & two specimens under bark. Mr. Josiah Case also informs me that he knows of no social wasps but the yellow-jacket & the bald-faced hornet. Consequently, as the ♀ hornets all perish before winter, & only the ♀ hibernates, it is reasonable to suppose that *o. fasciatus* is not social, & therefore it cannot be a *Polistes* as Dr. Fitch <sup>Harris</sup> calls it. (Inj. Ins. p. 17!) "Bald-faced hornet" ♀ hibernates under very rotten logs; "yellow-jacket" ♀ under bark of felled trees.

Left off Ichneumonidae with "Cryptus" Say II. 688 — Thence to p. 704 hawoked through. — worked thro Heteropt. to I. p. 314





6) *Oxytes Satyrus*?? Fabr. (my Calabro) ~~This insect is~~  
 figured in *Eschschol's* Report N. Y. as *Copris*, *Carolina* -  
 it is clearly not a *Copris*, but an *Oxytes* - belonging to  
 Dynastidae, not Scarabaeidae. It agrees with characters  
 of *Oxytes* given in *Deterville* (II. 102) & especially  
 differs from *Copris* in the absence of the  
 lunate clypeus & the inferm. & post. tibia being  
 "lanceolatus ciliatis" (*Deterville*). Hope gives  
 under *Dylomytes* (Melch. Cat. p. 57)  
 July 4. Caught 2 *Dylomytes* (small) at the back of "Brick" - just  
 July 6 Caught large *Dylomytes* (plain thorax) with  
*Berberis fasciculata*? &  
*Musca caesar* in its claws - middle July caught  
 one burrowing in sand.



Larva found in  
 company with  
*Hirpalia*, *Pemphigus*  
 under log July 17-60  
 17-4 segments polished  
 black - rest dark black.  
 Caudal appendage 8 legs - infus. body hairy

This is evidently a  
 staphylinidous larva.  
 (See Westwood) from the  
 anal proleg

July 19. saw the <sup>Tingid (Syrphid?)</sup> *Phymatoceros* Fabr.  
 (yellowish & black) with cap-  
 tatory & very stout fore legs, engaged in sucking the  
 juices of the smallest species of *Bombus*, on  
 a flower. The *Bombus* was still alive, but weak.  
 July 20. observed the large rufous *Trax* (*Eschschol*) (*Willd.*) on the wing  
 seize a middling sized small *Bombus* & stick its pieces,  
 taking it head end first & keep its abdomen away from  
 its own self. Inserted back part of thorax.

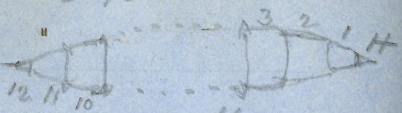
July 20. observed the ♂ scoliad (yellow & black fasciate) (2)  
 seize with its anal hook, like a thumb, objects presented  
 to it. Used for sexual prehension, as *Diapheromera*  
 Say? <sup>Tingid (Syrphid?)</sup>  
 July 28 Saw the above *Copris* preying on a *Tachina*? the  
 size of a house fly on umbelliferous plant. *Tachina* was  
 loudly buzzing, which attracted my attention.  
 The males of the 2 yellow banded scolia (smaller  
 than confluenta) use the long spine as a thumb  
 to take hold when it closes between the other  
 2 smaller spines.

In the nomenclature of my largest species of  
*Crabroidea* (1860) there is a peculiarity which *Deterville*  
 says is confined to the *Scolidae*. viz. the 1<sup>st</sup> subm.  
 forms a series with the marginal, & 2<sup>nd</sup> & 3<sup>rd</sup>  
 submarginal, a 2<sup>nd</sup> series (Gen. Cr. IV. p. 104-5)  
 The ♂ of some *Eumenids* have a double retractile  
 sting-like process at extremity of abdomen.  
 July 20. saw a *Tabanus* - bred, but very defective.  
 Aug 14. aquatic dipterous larva. Length <sup>2 1/2</sup> inches  
 when extended, 1 3/4 inches contracted. Pointed  
 at front both ends, <sup>ventrally</sup> <sup>subventral</sup> <sup>by a deep degree</sup> to every segment except  
 the first three, placed all round anterior edge, above  
 as well as below, so that he can progreps on  
 his back nearly as fast as on his belly. Color  
 a greenish white, <sup>translucent</sup> lighter beneath, <sup>irregular</sup> dark green  
 annulus on antenna & foreleg margin of each



(8)

segment, which is lighter beneath. A retractile horn,  $\frac{1}{20}$  long, at tip of tail.



Head small & not perceptibly horny or with any hooks. Burrows with great strength between the fingers, & walks on a smooth table feet & with ease. Skin very transparent, & as he progresses slides backwards & forwards over his internal organs like the finger of a glove. Head & first segment or two retractile. Tubercles not retractile.

<sup>Between March & April</sup> changed to a pupa not distinguishable from that of *Lepusa triovata* S. & same size. <sup>Sept. 19.</sup> Noticed on ears of Sweet Corn <sup>infested with chinch bug in imago & larva states,</sup> *heppodamia maculata* Degeer, *coccinella* <sup>no spot</sup> *mundana* Say, & two species of scymnids - one black & one black with rufous tail. Noticed one pupa of coccinellid also.

R. V. Ankeny Rio Grande, Freeport, Stephenson Co found his backwing of wheat (which was uphilled) free from chinch bug all over the field (in case from stranger) - soon thicker or thinner? R. V.

Nov. 1860 Noticed under log on Rock Island in a hollow of the earth a <sup>spherical</sup> ~~round~~ mass of <sup>common</sup> black myrmica  $2\frac{1}{2}$  to 3 in in diam, enclosing in their midst a lot of larvae. No larvae visible outside.

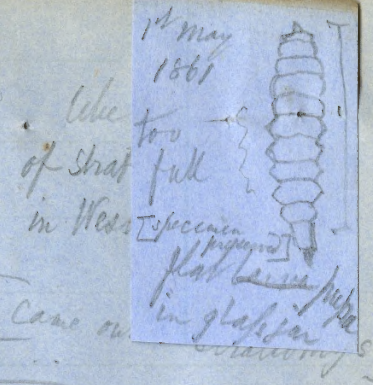


Decidedly a *Lepusa*: back like that of *L. triovata* Say

spines strongly developed on back

especially toward tail

Pupa of *Lepusa*? <sup>W. H. 524 f. 5</sup> *decidua* or *undata*? May 15. 61 [in square can] found under log. Very active, twisting itself about, back & forth.



(9)

4-footed, wood feeding natural (a pair) when attacked by *Staph. chely* *spitefully* one after the other in its jaws & kill them, exuding a black juice at the same time from its mouth. One which had attached it on top of its neck, it shook off by violent contortions, & then killed.

May 20. Bred a *Telephorus* <sup>Carolina</sup> *cinereus* ~~clayton~~, yellow thorax & black ~~dark~~ from a pupa found under white elm bark amongst larvae of cerambycids & Tenebrionids. Preys on them?

May 21. *Melandrya striata*? 5. 4 or 5 found in rotten sapwood of bass & several pupae? of it. May 22 <sup>Same</sup> <sup>under</sup> <sup>oak</sup> *Leptis*? *trifasciata*? imago under bass-bark. My two pupae? the same species?

*Dendroidea* (with rufous & black legs) found hitherto under oak bark, imago or pupa. Today 3 imagos under bass bark.



1<sup>st</sup> May  
1861

too  
full

[Specimen  
preserved]

flat Lamin  
in glass jar





end may  
Came out largest  
Common thysan



Decidedly a  
Tepulid: back  
like that of  
*T. trivittata* Say

spines strongly  
developed on back

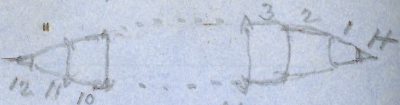
especially toward tail

Pupa of { *Tepulid?* } W II. p. 524 f. 5?  
~~Adelid or Medusid?~~

May 15. '61 [in square can]  
found under log. very active  
twisting itself about, back & forth



segment, which is lighter beneath. A retractile horn,  $\frac{1}{20}$  long, at tip of tail.



Head small & not perceptibly horny or with any hooks. Burrows with great strength between the fingers, & walks on a smooth table feet & with ease. Skin very transparent, & as he progresses slides backwards & forwards over his internal organs like the finger of a glove. Head & first segment or two retractile. Tubercles not retractile.

<sup>Between March & April. Changed to a pupa not distinguishable from that of *Epupa hirsutata* L. & same size.</sup>  
 Sep. 19. Noticed on ears of Sweet Corn <sup>Epupa</sup> ~~infested~~ with chinch bug in imago & larva states, *heppodamia maculata* <sup>blood red</sup> ~~degen~~, *coccinella* <sup>no elytr</sup> ~~murina~~ <sup>say</sup>, & two species of scymnans - one black & one black with rufous tail. Noticed one pupa of coccinellid also.

R. V. Anteny Rio Grande, Freeport, Stephenson Co. found his backwing of wheat (which was upland) free from chinch bug all over the field. (in case from stranger) - soon thicker or thinner? R.V.

Nov. 1850 Noticed under log on Rock Island in a hollow of the earth a <sup>spherical</sup> ~~round~~ mass of <sup>common</sup> black myrmica  $2\frac{1}{2}$  to 3 in in diam, enclosing in their midst a lot of larvae. No larvae visible outside.

like larva  
of stratiomys  
in Westwood

[Came out a stratiomys?]

May 15<sup>th</sup> 61, noticed the 14-footed wood feeding noctuid larva (of which I have bred a pair) when attacked by the common black myrmica, which chiefly spitefully round & seize 20 of them, one after the other in its jaws & kill them, exuding a black juice at the same time from its mouth. One which had attached it on top of its neck, it shook off by violent contortions & then killed.

May 20. Bred a *Telephorus* <sup>Carolina</sup> ~~caucasicus~~ <sup>elytra</sup>, yellow thorax & black ~~dark~~ from a pupa found under white elm bark amongst larvae of cerambycids & Tenebrionids. Preys on them?

May 21. *Melandrya stricta*? 5. 4 or 5 found in rotten sapwood of bass & several pupae? of it. May 22 <sup>same</sup> ~~under~~ <sup>oak</sup> *Leptis trifasciata*? imago under bass-bark. My two pupae? the same species?

*Dendroidea* (with rufous & black legs) found hitherto under oak bark, imago or pupa. Today 3 imagos under bass bark.



May 22. Noted *Cantharis l. punctata* under oak bark, these 4 or 5 times so which it this spring. Do the larvae reside there & lay on timber worms? Noted it again May 25<sup>2 specimens</sup> & 26 on ~~decaying~~ <sup>decaying</sup> oak bark.



found under oak bark. May 25 found two larvae (identical) no 2 1 inch long & evidently not half grown in a wh.-decaying strip. Probably the larvae lives at least 2 years, as the imago only appears May & June.

The Larva found under bark of a decaying black oak (or red oak) not materially rotten. Found there, doubtless. Four specimens of *Arctia lanigera* have been brought to me early in May from two different quarters, all to have been dug up in garden ground. One I saw myself on the ground, just after it was dug up. They - one of myself in my garden in 1862.

May 28. All my four pupae of *Chauliodes* (11) still to come out. Here a two-fold upper caudal process (1.5 long on top) & an inferior process of two soldered together. Pupa is quiescent, but can crawl straight on its belly, a pretty good kickery.

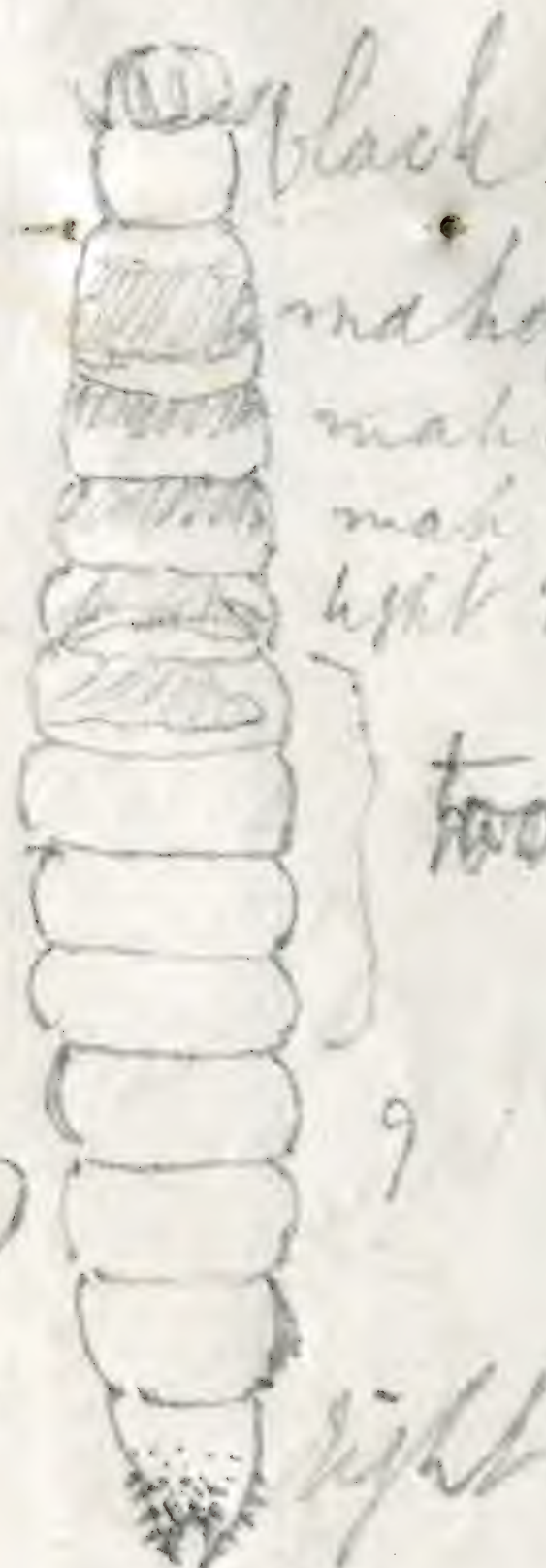
May 28. Mr. Fish. *Chauliodes rasticornis* Ramb. came out, from pupa found 10 days ago. Larva found 3 weeks ago had a 2<sup>d</sup> all gone to pupa. One of them chuffed & perished. They are aquatic or sub-aquatic & having been found on the lower side of a log affixed on edge of clough. But they ~~just~~ come out of water & go to pupa under logs, & one under bark of a log, forming a cell as *Psephenus* does.

May 28. Took 3 very large *Ceramb.* larvae from a very rotten belf log. 2-inch long, legs very short, segments much humped & a dorsal darker line along back - Also a smaller similar one, probably a year younger - say 1-inch long. Sea-pail. I had 4 others - from the woody fungus of *Voluptaria cornutus*. Larvae so small - specimens preserved - length .2 head yellowish, mouth piece, legs & walk well. Body whitish.



Larva of *Plan o culatus*

Harris p. 48



black

mahogany

mah.

mah.

light mah. to penult. segm.

too wide

9

beneath & ground  
above  
light yellowish

light mahog.

entire length <sup>over</sup> 2 <sup>inches</sup> ~~teeth~~ depth .15,

width about .3. Walked <sup>straight</sup> <sub>may 26. '61</sub>



recd," La Moille,  
3<sup>rd</sup> 1861.

Wm. E. Eg.  
esteemed Friend  
Yours kind and  
truly to my letter  
at heart a man



May 22. Noted *Acrida* & *panatella* under oak  
Tark, Phase - 4 or 5 times. so I heard it  
this spring. Does it larva. Evidently there I pay on  
trunk forms? Noted it again May 25 & 26 on downy

found under oak bark,  
May 25 found two  
larvae (larva) not  
1 inch long & evidently  
not half grown in a  
wh. hickory stump.  
Probably the larva  
lives at least 2 years,  
as the imago only  
appears May & June

May 26. Larva of *Catonia fulvida* Fabr. found under  
bark of a decaying black oak (or red oak) not  
materially rotten. Lived there, doubtless.  
- From specimens of *Ureoda lanigera* have been brought  
to me early in May from two different quarters, said  
to have been dug up in garden ground. One I saw  
myself on the ground, just after it was dug up. May  
- one of myself in my garden in 1852.

May 28. All my four pupae of *Chauliodes* (11)  
began to come out, here a two-fold upper caudal  
process (1.1 long or less) & an inferior process of two  
soldered together. Pupa is quiescent, but can crawl  
straight on its belly, a pretty good kickers.

May 28. My first *Chauliodes rasticornis* Ramb.  
came out, from pupa found 10 days ago.  
Larva found 3 weeks ago had on 28th  
all gone to pupa. One of them stopped  
& perished. They are aquatic or sub-aquatic  
& having been found on the lower side  
of a log floating on edge of clough. But  
they first come out of water. Up to pupa  
under logs, & one under bark of a log, forming a cell as  
in *Corydalis* *serotina*.

May 28. Took 3 very large *Ceramby* larvae from  
a very rotten belf log. 2-inch long, legs very short,  
segments much humped, & a dorsal darker line  
along back - Also a smaller similar one, probably  
a year younger - say 1-inch long. Six-paired  
- Had 4 exuviae from the woody fungus of *bolitophy*  
*comatus* - Larva is small larva - specimens  
preserved - length 2 inch yellowish, mouth brown,  
6 legs, with web. Body whitish.



May 28. Took on the island 7 specimens of a bee,  
collected in cells in a <sup>the end of</sup> filled tube. In some cells was  
a mass of pollen (old specimen) with many larvae in  
other layers; in others full grown larvae. In others  
open perfect bees. Some specimens are smaller grained  
(♂?) & 3 blue layers (♀?)

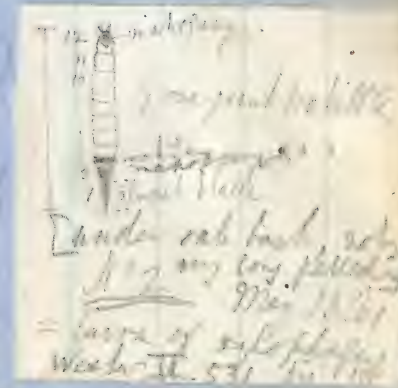
May 2. Fresh water stream on the Island. A yellow  
 upper lip. Eyes all black on the head & of thorax. Very faint  
 brownish legs, with a few spots of brown. ~~Very~~  
 Tail of brown, diverging every way. Segments  
 of 1st & 2nd abd. segments, partly bulging.  
 Thorax in yellow margin, but 1st abd. segment  
 thorax only on dark margin, forming femur, like  
 my *Medea pilatus*? pupa skin. On abdomen  
 there is much black & white [see next page for details]

Took plenty of *Chordeia caputserena* F. on the Island  
 on May 25. I had found many specimens of *My.  
 Pemphigus forficatus* G. for the Bluff. May 29.  
 found a nest of the yellow ant in a stump honey-  
 combed by bees on the Island: it contained many  
 wingless *Pemphigus*, located at least 1 ft. from the  
 ground. Had seen them in 1860 also under bark  
 some <sup>above</sup> the ground. May 30. We had more  
 than a doz. nests of the yellow ant under stones  
 on the Island, all with wingless *Pemphigus* in groups  
 adhering to stones, & larvae on surface of chambers

on the south beach. Some were naked, some in the  
new form covered with dense masses of cotton.  
(Bird. speciosus)

From the 1st from 2 of 2 pupae found in a cotton leaf, foot,  
is a tube with one end of pupa even with the outside, a pyralid  
with anterior wing-fringe dotted with gold: labial palpi  
very long & like a bottle-brush, <sup>very long, found</sup> max. palp. shortish. The pupa  
is remarkable for the cranial apex being truncate, almost  
squarely, but sloping a little towards the ~~abdomen~~ <sup>ventral</sup> surface,  
& armed with 4 long,  $4\frac{1}{2}$  short spines in a  
diverging from the centre. Pupa-skin preserved. The pupa  
was enveloped in a cocoon of fine wood-bark lined with silky  
white silk. No such pupa in Westwood.

June 2<sup>nd</sup>. Took a very large P. clappii in A road  
of the yellow oak of the Pamphili, that has its  
max. palpi elbowed & the 2<sup>nd</sup> joint bifid. ~~Not~~  
No such arrangement mentioned in Wistar, either Vol I or II.  
The eye is small, but prominent & distinct. [more correct] ~~the~~  
~~max. palpi~~ ~~are~~ ~~small~~ ~~but~~ ~~prominent~~ ~~&~~ ~~distinct~~. [more correct] ~~the~~





(34) Dec. 3. Noted a cluster of the *Pimpla* on a root (about 2 mill diameter) in ~~the~~ a <sup>small</sup> ~~lower~~ <sup>hole</sup> of a nest of the yellow ant under a flat stone. The cluster entirely surrounded the root.

[illegible]

Jan 9 & for the next previous have had many Hydrogones  
capitatus Take from paper at col (H. b. p.?) which I had  
mistaken for those of Hallerinus.

Larva of *Coronula cornuta*, besides sea legs, 10 pair  
 of <sup>palps</sup> <sup>proboscis</sup> <sup>branchiae</sup> furnished with ~~hairs~~ a fringe of hairs, one pair  
 on each segment from 4<sup>th</sup> to 10<sup>th</sup> inclusive. Paranthoracic  
 segment is simpler. Larva of *Charadrius*, being aquatic,  
 has not these peddles. They are not used in walking,  
 but are no doubt used in shovelling back the dirt  
 as it burrows in the earth. They are branchiae

Jan 18/94 of <sup>the same place</sup> [Rhizophora] (Fr.) white with <sup>the red shell</sup> black eyes.  
Conspicuous blackish. Apparently 12 dorsal segments.  
Length scarcely 2. The 2 pairs of occiput black.  
All the rest white. Body covered with a  
short white down, much. Swims, if disturbed, or rather  
struggles on surface of water. Invisibly there.

The Saron, when at the surface swims on its back. [Have a specimen preserved today with antennae of intermediate length - 74 length of body] It then keeps its body slightly below the surface, striking with its feet, but the pencil of hairs touches the surface, [being then not so long, (say 1 or  $1\frac{1}{2}$  mill)] & obscure compared with its view June 77. It jerks from point to point in a line curved downwards.


Occasionally a bubble of air is discharged from the tail. Beneath the surface it darted with great vigor upwards or downwards, but does not use pencil of hairs, which is then retracted into the transverse horizontal slit. Changes its course from up to down or vice versa with a sudden quick jerk. Distance of pupa an about  $\frac{1}{3}$  length of body, & are placed side by side lengthwise beneath the body. <sup>It is in water, below test.</sup> <sup>segment above is brown, & 2.</sup>

June 10 - Took 3 larvae under decayed oak log, buried  
in cotton bolls in company with 2 small ones.  
<sup>3</sup> millim. long. <sup>2</sup> millim. long. <sup>1</sup> millim. long.  
Total length .5 inch. Antennae terminal half. <sup>1</sup> inch.  
Length of 11 feet square with a transverse oblong duct, <sup>1</sup> inch.



Spots generally  
transverse fine  
double longitudinal  
Narrower in front & behind  
~~Ch. elongata? Say~~  
*Eros humeralis* ?

From 2nd to 10th segm.  
2 in width



Ch. elongata? Say  
2 in width

June 12. Bred from jar of Primoryphon (in which it  
must have been I lived since June 7) a common species  
of Trichia - 25 by 8 before or later & measure of elytra  
found one larva of primoryphon discordans Say  
with all the dorsal segments brown, & noticed him  
distinctly protrude 3 or 6 feathers from his hori-  
zontal and short ones, thus, the feather appearing  
about the length of a normal segment, could  
not distinguish the <sup>biciliated</sup> Trichia from his hairlike.  
Killed one full grown larva, which died protruding  
the anal process - preserved it - Y. Thos.  
Larvae early taken darker before than in the water,  
resembling them, as other insects. The biciliated was found  
to be rare disposed in pairs than <sup>solitary</sup> <sup>single</sup>

Number of tipulated larvae in water where found - (17)  
in very shallow reef along with one  
very young & one full grown, they came in contact  
easily, but did not attack them. They  
crawl in food of water with ease & readily.  
Natural habit to crawl on decayed wood, small  
surface, occasionally swimming & coming to  
the surface, probably for a supply of air.  
It was always seen on their backs when  
at the surface. Might be crawling over food above  
like my other larvae. Swimming or back to take in air?  
June 14. Larva from tipulated gall of *Lodigium*.  
Pupa can proceed, as protruding. Larva 16 footed,  
yellowish. Spines (prolegs) all but 2nd & 3rd pairs  
separate. Head V-shaped, 2nd segment heavy & robust. Full.  
Specimen had failed to go to pupa, & probably about the  
length of 4. It had spun a good large irregular web of  
white silk in the small bottle where it was confined.  
June 14. Found three of my fore rose, *Azygoteles*? from  
to a fasciate *Lachnospila* larva. Two remain. Length  
Head yellowish. Body greenish, or dirty light green. A  
yellow stripe on each side. Above a double row of  
rows of narrow white stripes, one half wider than the  
others & downy greenish interior. Legs & prolegs too  
black velvety, the latter greenish inside & at tips, on



18' segments except 2<sup>nd</sup> & 3<sup>rd</sup> first a transverse row  
of 5 cheery black ruffles each bearing a hair,  
4 2<sup>nd</sup> a row of 4 st. anaps in quincunx  
on 2<sup>nd</sup> & 3<sup>rd</sup> segments a ~~4~~ 2 of ruffles .....  
on each side followed by a single row of 6 dorsal ones  
on the 6<sup>th</sup> segment, which is generally lighter  
colored, these ruffles <sup>ventral</sup> are more or less obsolete.  
Legs 16.

Series of Phytol.<sup>2</sup> Nebula. Wahle. Length  $\frac{1}{2}$  inch. -  
greenish brown, lighter beneath. Head & body both  
with long sparse white hairs. Head dull black, with  
few confluent punctures, <sup>subally, imperfect</sup> ~~subally~~ <sup>longitud.</sup> line, discontinuous  
in front; l. segment long above. An elevated shining  
black spot on each side 2<sup>d</sup> segment. Sep 16.

Mar 16. Capt. Gomphus vastus. Wagon with one  
of the head yellow & brown. Nephelopis Phryganides  
in its mouth. (Macronema zebina)

And 17. Since yesterday <sup>on</sup> of the *Chrysotoxa*? of  
the Rosebuds had gone under ground apparently,  
very typical larva, one on Rose, the other larva,  
No. 10 - [Lark.]

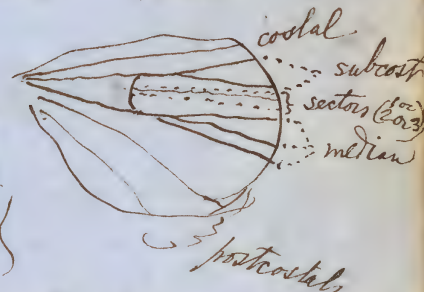
Of the immature *Gomphus* captured yesterday, noticed  
no faster & no beat with the abdomen very  
much inflated. Hard-colic? The hind tip of abdomen

1. Head; of a basal half greenish yellow.

August 6. Lusk found among the weeds in his garden a chrysalis about  $1\frac{1}{2}$  inch long, cream colored, wingcases spotted with small round fuscous spots. Tip of 4 antepenultimate abd. segments edged with mahogany, antepenult. not so broadly. Spiracles dark colored.

not so many. Spracles, variegated.  
 Aug. 7 Examined *Protophylla* juv. 5 or 10 larvae  
 still alive - put 3 in alcohol - kept them 5  
 to 10 minutes. No pupae or eggs.

In the hind wings of *Leucæa unipuncta*, the "arc" of Hagen is not, as in the Neuropt., between the median & submedian nervures, but between the subcostal (or cubital) & the median. Thus: —




The normal type of a Lepidopt. wing may be seen beautifully in ~~1st~~ <sup>2nd</sup> wing of Algeria, <sup>1st & 2nd spec. in Coll.</sup> where costal & subcostal are simple & almost coalesce, the sector has no prolongation towards the base & the median is ~~quadri~~ <sup>tri</sup>-furcate.

In some genera costal & subc. are bi- or tri-furcate; in others the sector is partially prolonged towards the base, but is obsolete before it reaches the base: In others the median is <sup>25</sup>furcate & the furcations variously arranged. The venation



of the upper wing is generally very similar & may be seen very clearly in *Lophocampa tessellans*, but is generally difficult on account of the scales. Hence the lower wing chiefly to be used.

*transversely*. Long wing - 9 on the left & small punctation  
on small red falciform appendages <sup>pigments segments</sup> feet & anal. Thorax  
*Thorax*

Sep 27, 1861. Found several <sup>larvae</sup> in a new kind of <sup>21</sup>  
 woody fungus - colored with sanguineous. Length 4 mm  
 breadth  $\frac{3}{20}$  - Color yellowish white. Head light before,  
 darker above; In the centre above three tubercles ~~at~~ <sup>separated</sup>  
 from sides of head by a suture. Each   
 segment covered above has a transverse black fascia,  
 of double width on the 1st which is rough with punctures.  
 From the 2nd to 11th the surface is yellowish white. A transverse carina is seen midly,  
 behind which the fascia is punctate, before glabrous.  
 These segments are also divided lengthwise by  
 a narrow yellowish line, wider in front on each  
 transverse black fascia. Last segment black above,  
 & rough with tubercles, with two short hairs pointed  
 upward. Beneath a <sup>dark</sup> ~~sub~~ventile protuberance? on the anal  
 aperture and on a protuberance occasionally? Legs five. Body  
 is slightly depressed, & tapering a little at both ends.

July 19. <sup>near m. city</sup> Saw on a human excrement (covered with  
red & black braconid (in cabl.) *Staphylinus chrysurus*  
siege an onthophagus



houses & apparently throw off flies.

July 10. Took *lib. corrupta* Hazen, lighter-colored  
as with specimen taken July 4. 1861 at Rock Island.  
Black spot, dorsal, 2 ant. segments abdomen. [Afterwards,  
took other specimens, one of the usual color, but  
all differing in having "raies" on thorax, (instead  
of mere dots) more or less developed.]

Near ~~Man~~ <sup>Stana</sup> City, noticed under bark of a post  
a pupa (hymenopterous?) enclosed in cocoon with  
two or 3 small (starved?) larvae by its side  
[found near Stana] Description of larva & pupa Papilio thoas?  
[died.]

found another  
specimen  
on a wild  
cherry  
end of  
September, '61,  
which he  
gave to  
Rapa in  
North Cape.

July 1st. Found on a willow twig a cottony mass  
 enclosing a number of footleps (ichneumonid?) larvae  
 about 2/3 long. Put in "Solway-gate" bottle. <sup>July 3, 1888</sup>  
 July 9th. Noticed 5 *Dicheloman agilis*? beg. singing on  
 the bank of Rock River on low willow trees -  
 chub - ch - chee - ee - ee - ee - ee. Differed from  
 summer specimens, in the top of the ear being bi-  
 cullate; instead of the two setae being confluent  
 also in the tibia (especially posterior ones) being black  
 but especially in the legs (lighter yellow, 3rd thoracic  
 joint black) 5 (14) specimens from wingless specimens  
 found in nest of yellow-anth, 10 or 5 days ago. <sup>wingless?</sup>  
 are rounder & whitish <sup>wingd ♀?</sup> than what have  
 been found & obtained wingd? larger & cinereous.  
 { <sup>♀?</sup> } <sup>14</sup> from plain-blown blue, abd. & coll. <sup>thorax</sup>  
 the black spaces. legs ~~dark~~ yellowish piceous.

I observed in *Platania brevifrons* Say, that the  
basal of anterior legs, though short, are movable on  
the tibiae - So of other legs.

No. 3. Found under a mass of cloaks or R. ...  
of a larva about  $\frac{3}{4}$  inch long, head brownish with fine,  
dark whitish dots, with many thorns or prickles.  
Syrphiform. Placed in large glass jar. Preserved  
in alcohol. When found they were clustered on  
some dead leaves (apparently partly eaten; under the stems).



propagating, he has his head as a point of appen-  
 Kely p. 74 says this is a character of *delphacids* larvae  
 Spring of 1861. *Delphacids* from a  
 very large white larva with coal black head  
 found under a stone on N. Y. Fall 1861 found  
 another larva under a stone in <sup>east</sup> Sept. 1861. 4 specimens  
 end of October visited the spot & traced  
 his track which he had travelled off  
 concerning the grass roots like *Phylloxera*  
*gossiana*. *Delphacids* in corn.

Nov 7. Hatched from pupa. *V. interrogans* R.  
 with an unusually wide dorsal blue margin  
 to the wing. Pupa (1 golden spots on breast)  
 found under sandstone rocks at Black Hawk  
 hatch tower. Pupa preserved. Found two more.

Dec 25. Clover caterpillars from McHenry Co. found  
 in mowing in clover stacks up to 2 ft from bottom.

**Clover Worms.**  
 We have received from Richard Wray, of Mc.  
 Henry county, another installment of those pests  
 found in his clover stacks. Mr. W. says he is  
 feeding the same kind of hay from a mow in the  
 barn, and all the lower part of it is filled in the  
 same way as the stacks that have been described.  
 He finds in cold weather they keep very close in  
 their webs, but crawl out in pleasant weather.  
 He further says that he believes the eggs are laid  
 in the green clover before cured, and the sweating  
 of the stack hatches them out. He has grown  
 clover hay for fifteen years on the same farm and  
 this is the first appearance of the worm.

Length 1/2 inch. A P. F. 1/2 inch. 15-20  
 segments glabrous yellowish green  
 by a third & a fourth of  
 of about 1/2 inch  
 1st & last) each has  
 a dark central spot  
 Diameter .07. Tapering  
 yellowish brown. *Wrayes* *punctatus* *Wray*  
 (see description p. 446-7.)

*Lodrus*

In Wisconsin Co 1849 first year of *Chenille*  
 (Ill. Rep. Rep. p. 304).  
 Mink's catch bee-moths (also grasshoppers)  
 (Conn. of Rural N. Yorker Jan 18. 1862)

—M. de Thoron has addressed a curious communi-  
 cation to the Academy of Sciences on the subject of  
 certain singing fish that inhabit the seas as well as  
 rivers of South America. He specially mentions  
 the Bay of Pailon, situated north of the province of  
 Esmeraldas, in the Republic of Ecuador, where,  
 being in a boat, he was suddenly startled by a  
 deep humming noise which he attributed to some  
 large insect, but which upon inquiry turned out  
 to be a kind of fish called "Musicoa" by the  
 people of the country. On proceeding further the  
 sounds became so strong as to remind him of the  
 strains of a church organ. These fish live both in  
 salt and in fresh water, since they are also met with  
 in the river Maraje. They are not more than ten  
 inches long; their color is white sprinkled with blue  
 spots, and they will continue their music for hours  
 without minding any interruption.

In the year '27 '28 '29 the black worm was  
 found in the wheat in the stack in the presence  
 of Mr. P. B. Souke St. Clair Co. Ill. Trans.  
 Vol. 2, p. 315  
 Feb. In the pupa (from a larva) recorded from  
 St. Clair Co. not glabrous, but sparsely  
 & has truncate tail with 4 tubercles.  
 Full of 1/2 inch but many *Delphacids* from a stack of  
 in the field. Larva constructed no cocoon, as *Delphacids*  
 larvae in stacks.



*P. F. Feb* **Clover Worms.** *15-62*

---

We have received from Richard Wray, of Mc. Henry county, another installment of those pests found in his clover stacks. Mr. W. says he is feeding the same kind of hay from a mow in the barn, and all the lower part of it is filled in the same way as the stacks that have been described. He finds in cold weather they keep very close in their webs, but crawl out in pleasant weather. He further says that he believes the eggs are laid in the green clover before cured, and the sweating of the stack hatches them out. He has grown clover hay for fifteen years on the same farm and this is the first appearance of the worm.

---



That said tax shall be paid to the Town Collector of the Town where such dog may be owned or kept each year previous to the return of the Collector's book. That the Collector shall pay over on oath, (after deducting a commission of three per cent. as compensation for collecting,) to the Commissioners of Highways, to be by them expended in repairing the roads and bridges of the town; said payment to be made at the time of the annual settlement of said Collector with said Commissioners; and that said Collectors shall keep a record of the payment and a description of the Dogs on which payment is made, and give a receipt for the tax, containing a full description of said dogs.

The constitutionality of such enactments has not been tested, but is in some quarters questioned. We believe there should be a stringent



24<sup>th</sup> prepuping. he uses his head as a point of app. <sup>July 19 50g this is a character of *Strophos curv*</sup>  
 Spring of 1061 took together *Strophos* from a  
 very large white larva with coal-black head  
 found under a stone on R. J. Fall 1861 found  
 another larva under a stone <sup>and Sept. 1861</sup> in October. 4 specimens  
 sent of which visited the spot & traced  
 his track which he had travelled off  
 concerning the grub roots like *Phyllophaga*  
*quercus*. *Dytiscidae*: *incomens*.

No. 7. Hatched from pupa. V. intersegmental &  
 with an unusually wide & vivid blue margin  
 to the wing - Pupa (1 golden spots on breast)  
 found under sandstone rocks at Mark Hawk  
 hatch tower. Pupa preserved. Found two there.  
 Dec 25. Larva. Caterpillars from McHenry Co. found  
 on mulberry in Grove stacks up to 2 ft from bottom  
 Length 1 1/2 in. color <sup>greenish</sup> brown; head <sup>yellowish</sup> light  
 segment glabrous yellowish brown. Legs normal. Surfact  
 by a thread & spin white web. A numerous row  
 of about 1 long white hair on each segment (except  
 1<sup>st</sup> & 10<sup>th</sup>) each hair proceeding from a light tubercle with  
 a dark central spot. First 4<sup>th</sup> segment irregular hairs.  
 Diameter .07. Tapering slightly at each end. Beneath  
 yellowish brown. Wiggles & runs backward like a *Forster*  
 (see Harris p. 1146-7)

In W. W. Bishop's 1849 first year of Church  
 by (M. R. R. p. 314)  
 marked catch see notes (also prepared)  
 from of Rural N. York Jan 18. 1862

—M. de Thoron has addressed a curious communi-  
 cation to the Academy of Sciences on the subject of  
 certain singing fish that inhabit the seas as well as  
 rivers of South America. He specially mentions  
 the Bay of Pailon, situated north of the province of  
 Esmeraldas in the Republic of Ecuador, where,  
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 deep humming noise which he attributed to some  
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 sounds became so strong as to remind him of the  
 strains of a church organ. These fish live both in  
 salt and in fresh water, since they are also met with  
 in the river Maraje. They are not more than ten  
 inches long; their color is white sprinkled with blue  
 spots, and they will continue their music for hours  
 without minding any interruption.

In the year '27 28 & '29 the black weevil <sup>was</sup>  
 destroyed the wheat in the stack in the grove  
 Nov 1. B. Fouke St. Clair Co. (M. R. R. p. 315)  
 Feb 2. p. 315  
 The pupa (from one hatch) recorded for  
 it is not glabrous, but sparsely  
 & has truncate feet with 4 tubercles.  
 May 11. Saw many *Strophos* from a rather big  
 in the field. Larva consists of 10 segments, as *Strophos*  
 Larva is short.



2) *Costeococcus dubius* found in E. Ill. at roots of  
 fresh trees (bark) also in *Juniperus* -  
 found *Scaphisoma subterraneum* in burrows of  
*Coprinus Canaliculus*

*Aspidiotus* *insectus* found in *Juniperus* *horizontalis*  
 in a sandy place under a dead pine, where  
 were found many pupae of *Musca Chloris*

*Phaenocarpa* *fulvipes* found in *Juniperus* *horizontalis*  
 in a sandy place under a dead pine, where  
 were found many pupae of *Musca Chloris*

March 2. In *Juniperus* *horizontalis* found the  
 white thrips of *Heliothrips* *fulva*  
 from out. It was the pollen

Wondescript - *Malachide*.



*Telephorus* can be found in the soil  
 under white oak bark among cracks etc.

*Phaenocarpa* *fulvipes* found in *Juniperus* *horizontalis*  
 in a sandy place under a dead pine, where  
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Journal of the State Agr. Socy.  
 Feb. 7-1862

FARM MANAGEMENT.

Statement of Farm Management and Products, for the year 1861, by  
 S. W. Arnold, near Cortland, De Kalb county, Illinois, to whom was  
 awarded the second premium on farms of 160 acres and upwards.

The oat crop was diminished. There are instances with farmers in which debt can  
 hardly be avoided, as was the case here in 1856 and 1857;  
 the grasshoppers destroyed our crops two years in succes-  
 sion, and many had given credit to those who became invol-  
 ved at the time of the financial crash; the latter might per-  
 haps have been avoided by judgment, and perhaps a better  
 knowledge of natural history and science may have aided  
 in providing against the ravages of the grasshoppers. One  
 fact I noticed, although they ate the bark from saplings,  
 and consumed our corn, tobacco, etc., ate holes in clothes  
 hanging out to dry, destroyed boots and shoes when they  
 lit on them in the house, yet peas they avoided, and it  
 was an odd sight to see the field completely stripped, even  
 of the weeds, and the pea patch left undisturbed. There was  
 no turning to the right or left with them, they went hop-  
 ping on to the tune of John Brown, and they may be hop-  
 ping yet for aught I know. I only hope they will never  
 come here again. Many resolved then to keep two years  
 supply of produce on hand afterwards, but I fear most of  
 us have forgotten the good resolution made in time of dis-  
 tress, as is often the case.

O. H. KELLEY.

8-14 County - *Juniperus*  
 July 21. 1862



is ~~Stylops~~ ~~pipitiformis?~~  
~~Chloridophorus~~ ~~West.~~  
~~Formica~~ ~~belagato~~  
~~Aleocharini~~

gala ~~XXXX~~ <sup>thus</sup> bimanillary 

Tarsi half length of tibiae two  
equal joints — claws very slender  
ant. inserted on large tubercles before  
inner corner of  
eyes.



proth & mesoth. <sup>supra</sup>  
metathor. <sup>hairy</sup> Vabdomen yellowish  
abd. dusky <sup>behind in the</sup> ~~the~~ <sup>6-5</sup>  
except last joint <sup>beneath</sup>

hind coxae thus  
flattened

4 above visible



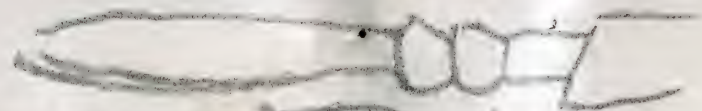
Middle the same

ant. <sup>eyes large</sup>

front. corneal  
lenses all contiguous

F.O.





intermed leg



front leg (joints very doubtful)



perfectly transparent - no joint

hind ~~middle~~ leg

dark mark



another light





2nd j. and.  
 3/4 of 3rd  
 last j. - longest  
 except Scap.  
 3 last joints  
 slightly enlarged

all 11 pubescent



When, after the birth of the last of her litter of six, <sup>80</sup> little ones were put to the udders of the mother, and began to draw their natural food, at that moment the speed was broken, and the measureless love of the mother was developed—it flowed with her milk. Though the process of putting the little pigs occupied scarcely a minute, yet that short interval sufficed for the great change, the birth of an affection that was to be boundless and untiring so long as her little one needed the mother's care, for upon one of her young uttering a cry as I placed it beside her she turned on me with a roar of anxiety and anger that sent me with a leap to the other end of the enclosure. The development of hoggishness and spite in the young pigs immediately after birth, was both surprising and amusing; they would contend fiercely with each other for food, and when obtained would defend themselves from their fellows by moving their hinder parts towards the quarter from which an intruder approached.

Marblehead, Mass.

JAMES J. H. GREGORY.

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[For the Country Gentleman and Cultivator.]

**REMEDIES FOR CRIB-BITING.**



ress. There are instances with farmers in which debt can hardly be avoided, as was the case here in 1856 and 1857; the grasshoppers destroyed our crops two years in succession, and many had given credit to those who became involved at the time of the financial crash; the latter might perhaps have been avoided by judgment, and perhaps a better knowledge of natural history and science may have aided in providing against the ravages of the grasshoppers. One fact I noticed, although they ate the bark from saplings, and consumed our corn, tobacco, etc., ate holes in clothes hanging out to dry, destroyed boots and shoes when they lit on them in the house, yet peas they avoided, and it was an odd sight to see the field completely stripped, even of the weeds, and the pea patch left undisturbed. There was no turning to the right or left with them, they went hopping on to the tune of John Brown, and they may be hopping yet for aught I know. I only hope they will never come here again. Many resolved then to keep two years supply of produce on hand afterwards, but I fear most of us have forgotten the good resolution made in time of distress, as is often the case.

O. H. KELLEY.

Anoka Co., Minnesota, June 28, 1862.

*W. J. Connelley - Grasshopper  
July 31. 1862*



Great Hickory

galls (1775)

June 12 - 1875









head coxa  
Transverse

interm. cox widely separ?

ant. cox long conical-cyl-  
indrical & very prominent

interstices bristled



last bars. ft. longer  
than all the others

and then

(scut. obsolete)

fitting between  
elytra

ant. = scolytus  
labrum obsolete  
jaws = scolytus

2007-2005



25) *Castroville* *salina* found in S. 20. at end of  
 fresh water (pond) also *L. pseudomaculosa* -  
 found *scaberrima* sublimis in barrens of  
 Capricorn  
*Trichomanes* *complanatum* found in barrens  
 in a sandy place near a dead river, where also  
 were found many *Trichomanes* *complanatum*  
 (found 10 off)  
*Trichomanes* *complanatum* many *Trichomanes* *complanatum*  
 found in barrens near a dead river, where also  
 were found many *Trichomanes* *complanatum*  
 (found 10 off)

Made in barrens the *Trichomanes* *complanatum* skin for the  
 skin of *Trichomanes* *complanatum* found  
 in barrens near a dead river, where also  
 were found many *Trichomanes* *complanatum*  
 (found 10 off)  
 - *Trichomanes* *complanatum* - *Trichomanes* *complanatum*.

*Trichomanes* *complanatum* found in barrens near a dead river, where also  
 were found many *Trichomanes* *complanatum*  
 (found 10 off)

*Trichomanes* *complanatum* found in barrens near a dead river, where also  
 were found many *Trichomanes* *complanatum*  
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2  
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 The oat crop was diminished at least 10 bushels per acre, by the grass-  
 hoppers, who eat off the heads, the ground being literally covered with  
 grain, and the sod at the time of plowing this fall, was very much like  
 the sod that forms around where a threshing machine has been used.

mistake: did not in 1864  
*Trichomanes* *complanatum* found in barrens near a dead river, where also  
 were found many *Trichomanes* *complanatum*  
 (found 10 off)



28) Found a specimen of *Chironomus apicalis* (Hutchinson) from  
Hesperia fly stream in 1861.  
Specimens not in day but in 1861 from pupa found in  
5 26. under log of dead tree.

Recd. March 1862 from John P. Reynolds,  
4 specimens of *Leucania unipuncta* caught  
in the spring of 1860 flying about the cherry  
trees in the evening when the trees were  
in blossom" by Phil. M. Springer of Springfield,  
who sent them to Reynolds

Psyche - *Leucania*

In colony of *Francis* *Delaware*, I saw a lot  
above and below 5 but there is no more than 100  
found with others in the collection.

May 1862 Strata on boring Artesian well at Depot R.I.  
117 ft Limestone (like that at Coal Valley)  
6 or 7 in. Shale  
5 ft. sandstone  
1 ft. 6 in bluish limestone (like that at Coal Valley)  
2 ft. 2 in coal  
6 to 8 ft sandstone (getting more calcareous) white

May 1862 Put 5 or 6 larvae of *Corydalis cornutus* in water (29  
of River; 3 or 4 rolled themselves up & were carried  
away by the stream. Two crawled out of the  
water. One of them climbed up an adjacent very  
smooth barkless stump 3 ft. high; used his  
anal process ~~to~~ as a proleg; did not use  
the ventral processes; attempted to climb  
down the same stump & lost his hold & fell  
into the river.

May 26. 1862 Colonel (V.S.) writes me  
that *Phryne* *apicalis* *unipuncta* (after my collection)  
are not from the group. He says J.H. H.  
Hawley, who gave a description of the group  
in his paper, says *unipuncta* is a new  
genus, and *apicalis* is a new species.  
The head of *Phryne* *apicalis* is split than  
(= *unipuncta*)

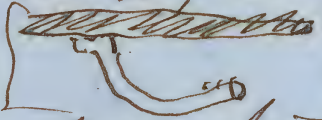
Light brown limestone 10.  
White marble 10.  
Light gray limestone 10  
June 2. 1862







Lat. inter punctate legs - in heavy velvet hair under ant.  
 is ornamented to (white segs not capitated legs) -  
 eyes yellow. Black banding line -

A geometer caterpillar (oak?)  $1\frac{1}{2}$  or  $1\frac{3}{4}$  long  
 showed no disposition to feed in October m. & w.,  
 & remains (Nov. 9)  on the left  
 upper side of the wire breeding-cage.

Nov 11 shifted its place to right further corner  
 & was lively. It & another in same place.

May (middle) would  
 not eat very young oak  
 leaves, & shrivelled &  
 became helpless. Pieces  
 of oak leaves in  
 breeding cage.

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+ 2 one specimen double hump on 5, 7, 9 & 10  
 in another - single hump on 6 & 8 - 12 spots, white & pink

Found a mass of cottony cocoons on a yellow leaf,  
 which produced Augt. 167 microgaster (3rd abd. seg.  
 laterally reflexed)

Aug 16 - Saw the hibernian ichneumon (Hibernian  
 Ichneumon 82) in a flower sucking juices of  
 a long-tubed plant.

Mr. White found the remains of a black  
 fly in the end of a fly in a jar of  
 the house of polished, they ate  
 & defecated freely in confinement.

Found a mass of cottony cocoons on a yellow leaf,  
 which produced Augt. 167 microgaster (3rd abd. seg.  
 laterally reflexed)

Found a mass of cottony cocoons on a yellow leaf,  
 which produced Augt. 167 microgaster (3rd abd. seg.  
 laterally reflexed)



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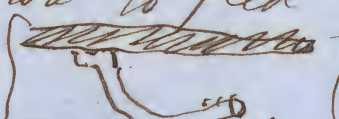
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Lat. intersegmental segs - in every visible line - on ant.  
 is associated to (not segs segs) not separated segs) -  
 eyes yellow - black decending lines -

A geometer caterpillar (oak?)  $1\frac{1}{2}$  or  $1\frac{3}{4}$  long  
 showed no disposition to feed in October in. & end,  
 & remains (Nov. 9)  on the left  
 upper side of the wire breeding-cage.

Dec 11, shifted its place to right further corner  
 it was lively. Feb 9 another in same place.

May (middle) would  
 not eat very young oak  
 leaves, & shrivelled &  
 became helpless. Placed  
 it under leaves in  
 breeding cage.

+ 1/2 are specimens found later on 5, 7, 9 & 10  
 in another - small lines on 6 & 7 - 5 is small, notated, found on 5

Found a mass of cottony cocoons on a leaf,  
 which produced Aug 1. 167 microgaster (3rd abd. seg.  
 not only before)

Found the herbivore, which (Horticult.  
 Centre &.) on a flower sucking pieces of  
 a dry leaf & petals

Found the remains of a larva  
 found in the web of a fly, by separated  
 spots, to be all polished, they ate  
 the whole fly in confinement

Known more  
 young, they by a geometer fly, coming, say, from  
 some web off. The larva was not that will be  
 it, just like some. That is 8. (a distance of 8 ft)

Found a larva of a geometer fly, coming, say, from  
 some web off. The larva was not that will be  
 it, just like some. That is 8. (a distance of 8 ft)

Found a larva of a geometer fly, coming, say, from  
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342 *Sphargis* larva (green) on horn  
 1 *Corvus* (3 *bonalis*) found on oak (small *Sphargis* larva)  
*Smicromitus* *myops* (1) - *Myocampa* *stigma*? Feb 11. 342  
 on *Callisuga* (redish) 6 or 7 large *Paro*-*corvus*  
*Myocampa* *stigma* 2-inch long, green with  
 See also p. 30. *Myocampa* *stigma* *stigma*  
 2 or 3 brown on locust - many green  
 with pale stripe on body (locust) // *Lycophotia* - *leptocoma*  
*Apocrita* (1) + green *Myocampa* pale dorsal stripe







The ♀ of *Lachnus Carya* lays eggs  
about .1 long,  $2\frac{1}{2}$  as long as wide, cupped  
rounded at end, testaceous or pale red.  
The ♀♀ (b & s) never seem to acquire wings.  
to Oct. 9<sup>th</sup> 1862

The larva of *Danania flexipes* is furnished  
with yellow & black & head, ant. & post.  
and of the legs a pair of moveable  
black segments about 7 or 8 long. <sup>Wash.</sup>



Feb 24. Found a larva of *Arctia* isabella  
all tawny red except some black behind  
the head. Reared among many normal ones  
but in alcohol.

Nov 9. Noted "Coccoloba Harrisonii" on  
oak trees on Bluff (long way near J. Carr's  
Corner, South End. (Not many 5 or 6 leaf. Hybrid  
trees

"Of a woman, kept in captivity near Rio. When the winter (a winter like the ~~South~~ latter part of a Northern May) began, he became nearly fast, & remained without eating for 24 months."

Flukha's *Pravda* & the Ex. 1-294 (from 1945)

LOCATION OF AG. COLLEGES.—Will you please inform me, through the columns of the RURAL, where the different Agricultural Colleges are situated? and oblige—CANADA, *Forest Station, C. W.*

In the **RURAL** of April 12, 1862, we gave an article on Agricultural Colleges, stating the location and condition of the most prominent ones. Among those in operation are the Michigan Ag. College, located at Lansing, the capital of the State; the Farmer's College, at Farm School, Center Co., Pa.; and the Maryland Ag. College, located ten miles from Washington, D. C.

R. N. V.  
Jan. 3. 63

Scrub away in the center of the

[illegible]

Wm. de Labele (Coleoptera) \* [ink] de Labele "as in  
Muhl. Cat." ; x [pencil] de Labele from Nat. Soc. Hist.  
State or Territory uncertain.

Oct 29 '52 Found a specimen of *Crotophaga sulcirostris*  
Dec. in south of Mexico, along with *Colaptes*  
*serripes*. The closely allied *C. communis* occurs in  
Swains, always <sup>of young trees</sup> in the park. It feeds on seeds  
2nd in timber.

5-11-62 Took in woods *Amphispiza bilineata*  
 4 species of note, the red species of  
*Geothlypis trichas* "KVS" p. 113



41/ *Acanthus bipunctatus* Def. has 3-pl/nds  
4(?) hind wing. This & the wing & *Hyacin*  
makes a new genus = *Acodendron*.

- Recd from Kansas per Emory V. Co. a double row  
of flat oval eggs - ~~222222~~ - 16 in number -  
on twig of apple tree. No doubt eggs of  
*Platyphylus concavus* or some allied *Cyrtide*.  
See *Harris 3<sup>d</sup> edition* p. 157. 159. 160.

Feb. 18. 1863 Noticed several small <sup>elm</sup> wild plum trees  
7 or 8 ft high on the R. & V. C. R. R. beyond <sup>Brooklyn</sup> the Orchard  
just this side of an open cattle crossing to the left.  
A great many of the limbs & twigs <sup>& some of the trunk</sup> of which were  
covered <sup>some times</sup> chiefly on one side, with slits, the bark  
gaping open. These slits were about  $\frac{1}{8}$  inch long,  
longitudinal, & contained each from 7-10 white  
semitransparent, flattish, oval eggs,  $\frac{1}{2}$  times  
as long as wide, packed obliquely, the outer  
tips pointing upwards. ~~in a twig~~ In a twig 3 <sup>inches</sup>  
in diameter & in 1 inch of its length I counted  
34 of these slits, & the rest of the twig was  
the same. Each slit, on stripping off the  
green bark, was brown, the brown color  
extending a little on all sides of it, & the green  
bark itself was similarly discolored. The whole  
tree was not thus infected, only particular  
limbs & twigs. <sup>often 5 or 6 of white tree</sup> The eggs were generally imbedded  
into the sapwood about half their length,  
sometimes nearly their whole length.

[None hatched to a green sp. of *Empoasca* p. 56]

on carefully examining my pear tree (which had  
last August some few chloronera on it) I find  
here & there a twig with precisely similar  
slits (2 or 3) only the eggs are 3 times as  
long as wide. Otherwise arranged exactly alike.

Feb. 20 Found a few similar slits on pear & apple  
in Boyer's orchard. Kinney tells me that 8 years  
ago Dr. Gregg's Apple trees were full of such slits,  
& there was "blight" there. He has long noticed  
them & the eggs in them, he says. On the apple the eggs  
seem <sup>not flat, but</sup> ~~cylindrical~~ <sup>fusiform</sup>, rounded at tips.

Feb 21. Found eggs & slits on a young crab  
near the <sup>elm</sup> wild-plum trees, about a dozen in a  
twig 2 inches long & .4 diameter: eggs ~~cylindrical~~  
<sup>fusiform</sup>, 3 times as long as wide placed ~~in a row~~ <sup>(not in a row)</sup>  
outside tips rather more pointed than inside tips, .07  
inch long. When 2 or 3 slits were together, they  
were confluent into a large round rough scar  
on larger twigs .4 inch diameter.

Found similar slits & eggs on twigs of a young  
burn-oak & also on those of shag-bark & white  
hickory, all in the close vicinity of these plums.

March 16. Found *Corythoidea* & *Chalcid* on *Empoasca* near  
Boyer's orchard.

FROM NEAR VICKSBURG.

MEMPHIS, April 2 (via Cairo, April 4).

The health of the troops is good, but horses  
are dying by hundreds, in consequence of  
being stung by gnats.



43 In *Pimpla* ♀ (*Hymerost.*) there are eight dorsal segments to abd. & ovipositor is attached at end of 5th ventral. In *Mantis* ♂ & ♀ dorsal, & only 8 ventral (the Westw. spec.)  
" " ♀ " " & ovipos? at tip of 6th ventral, the scale only. covering the other 5th.

Byrsocrypta, apparently = vagabunda Wald  
June 6<sup>th</sup> green galls (cuckoo-like) with large larva

cecidomyia  
(= ingulsioides cecidomyia ~~egg of~~ ~~Diaplocephala~~)

April 9. Found half-grown *Eragrostis variabilis* Walk.  
(Kadavil) hypererect, under a log.  
April 18. 45. *Cynipis* *g. podagre* Walk.  $\Sigma$  from common E. of 1st. Slaughter  
house  
swelling on branches 1 to 2 1/4 inch diameter of each  
(*g. tinctoria*?) Ant. very pale, yellowish, half-faded.

Before, except hind cone & feet. <sup>generally</sup> reddish & tips of  
tarsi & hind leg obscured. Abd. shining piceous.  
<sup>in some light & dark</sup>  
Differs from *C. quercus* tuberosus  
in other respects, besides not having 9-12 s? antennae.  
Felt had ♂ & ♀ of that species. Call them *Cynops*  
*quercus-podagrea*. - Very near *C. quercus-tatulae*  
Felt, but that species has all its tibiae black  
& has 13-jd. antennae & the gall is very different.

Noted probably this month many more  
specimens of *V. Progne* in timber, & today  
captured one. Apparently hyperactive in course.

- Good imago of *Harpactor cinctus* (Germ.)  
Hypocnides in imago, imago appearing late in  
season.

Noted on every Pap. Turnax

End of March or beginning of April I found many boxes of Forams apothecary in quantity with a shape of a box.

The cells of *Solidago*, containing <sup>50 or</sup> a hundred woody cells,  
 connected by spongy matter, each cell traversed by a spiral  
 orange-colored layer, <sup>about 1/16 inch thick.</sup> *Chalcidoptera*? See P. Sack's paper  
 [yes: *Kei species*]



45) Last April & 1st May - All the ♀ Ager Ramburi  
which I take (they have only appeared for the  
last 3 or 4 or 5 days) are of the orange-colored var.  
Quarry - is this the immature type?

May 14 The chrysalis (supposed phasos or chrysalis) on the  
R.R. to notice are now in leaf on each leaf, except  
those badly infected with egg-eaters, which I see the  
birds only come swarmed, if many of them heads  
(perhaps not) dead & shrivelled. Eggs not yet  
hatched, but some showing the dark eyes of the  
included insect. no doubt = mymar no doubt = mymar  
In every house & in the laboratory. When found almost  
entirely concealed it.

~~It is only in Neuroptera & Hymenoptera & Coleoptera  
relative largeness of the hind wings, that they are segments  
of metathorax are easily <sup>not</sup> ~~easily~~ <sup>seemingly distinctly</sup> traceable  
a good example of the "unity of design plan"  
<sup>animal creation</sup>  
that in Ephemerina (closely allied) these  
are equally plain, though the hind wings are  
very short & <sup>are traceable even in those sub-</sup> ~~the~~ <sup>when present</sup> genera absent;  
the genus Sphaer which has large wings than  
any other Hymenopt. & where consequently  
the metathorax is very large, they are  
scarcely ~~less~~ <sup>better developed</sup> ~~more easily traceable~~ than in other  
Hymenoptera, the metathorax <sup>only</sup> being  
greatly enlarged.~~

Prof. Westwood says "it is only in the prothorax of some Locusts that the dorsal subsegment of the prothorax can be traced." In most Reduviids & also in *Belostoma* & *Ranatra* (Heteroptera) there is a single transverse connate suture as in *Tetras*, indicating two subsegments!

*Hyparchiscus venustus* Walsh  
May 11<sup>th</sup>. { A smaller larva (fed on oak?) brown  
with many like macules purplish-lil shorter  
body otherwise normal, came out into the  
green geometer previously in collection - Pupa  
skin preserved. Torus nearly as long as antennae.  
Abdomen (second) <sup>white spot</sup> grata on dorsum of 1st & 2nd - 3rd  
~~for this greenish larva~~  
with a large white spot on dorsum of 2.

~~May 11<sup>th</sup>. From galls of *Podagrus* 2 ♂, 6 ♀ of *C.*  
gall. *Podagrus* W. see p. 43. All heads thorax  
infus, except large black spot on scutell. &  
Dorsum of thorax black. [Specimen 3 preserved. Others  
changed.]  
all in life - fasciated - sep infus, head like generally of *Podagrus*  
all thorax follows above, almost infus. Dorsum~~

May 12. Wd. from infected box, of elm on 11  
 20. 2 narrow 8 & 3; mymar <sup>leaves</sup> ~~leaves~~ <sup>leaves</sup> ~~leaves~~  
 Eggs had been noticed containing hatched pupa,  
 while the rest were white & must have been  
 the black Myrmec. There - Noticed May 10<sup>9</sup> or 11<sup>10</sup>  
 many myrmec on the elm trees.



(47) <sup>May 15</sup> ~~Guy's~~ <sup>Fidagoo</sup> - One ♀ bottled May 11 still retains  
 the pale rufous ground-color. <sup>carrying the 1st 2 1/2 hours of</sup>  
 of a lot butchered today (May 15) <sup>black with</sup>  
 { 2 ♂ <sup>pale</sup> ~~full~~ <sup>ground color</sup> rufous & 1 ♀ rufous (bottled May 12) (g.c.) <sup>pale parts</sup>  
 { 3 ♂ <sup>pale</sup> ~~full~~ <sup>(g.c.)</sup> rufous, 10 ♀ <sup>pale</sup> ~~full~~ <sup>(g.c.)</sup> rufous, 2 ♀ rufous (bottled May 12) (g.c.)  
 { ~~4 ♂ black~~, 1 ♂ <sup>may</sup> ~~pale~~ rufous, 4 ♀ <sup>head & body black</sup> black (head rufescent)?  
 All 4 small, 3 ♀ rufous (g.c.) (bottled May 13)  
 { 1 ♂ <sup>head</sup> ~~pale~~ rufous (g.c.), 2 ♀ <sup>body black</sup> black, 1 ♀ (as small as the 4 }  
 small <sup>of</sup> May 13) black, head rufescent, 2 ♀ pale } 14  
 rufous (g.c.) <sup>body black</sup> bottled May 14<sup>th</sup>.  
 N.B. observed in bottle pale & dark individuals, & mounted on  
 ♀, but not coupled.

The 1st belongs to Hardy's A, II. (i. *ingulinea*) the 2nd (which came out soonest) belongs to A. I, & is the true maker of gall, no doubt. Besides the 1st *ingulinea*, I have reared ~~70~~ 80 of another ~~ingulinea~~ <sup>*ingulinea*</sup> from the same galls, which is black & closely resembles *Podagrea*, but venation is different but is smaller = *meadusa*. ~~These galls~~ <sup>These galls</sup> ~~together, but a few~~ <sup>had many holes, made by a posterior species.</sup>

May 17. Two hemipterous larva from clam shell egg. Pale  
with black eyes. On dorsum a double row of 10-11  
heavy filaments. 3 on thorax. Head large, with 2 eyes  
like the filaments which = breadth of segments.  $\frac{1}{2}$   
Glabrous integument have a genital surface distinct from  
rest. Wyman P. B. Soc. N. H. Vol IX. p. 180.  
The male below? (Gibb's) (Gibb's) (Gibb's) (Gibb's) (Gibb's)  
♀ of *Myia bonifera* W. has the ocellus 12-13  
192 distinctly pca V pale & red black.  $\frac{1}{2}$   
Below is between 192. Gen. difficult to count, but  
either 5 or 9's club 192. In 3 joints exactly = 13.  
May 17th 1921

May 17<sup>th</sup> Oak-leaves scarcely yet full-size, <sup>(about 2/3)</sup> or 1/2 of late spring, yet found numerous oak-apples, all with terminal hipple, near Slaughter-house on the Flats. Larva in them half-grown, & many of the apples full grown. Skin thick as apple of *aciculata*. Are not these the spring-brood of *aciculata* & both ♂ & ♀? My ♂ *aciculata* came out from a gall with very thin skin before July 5. On the same trees, still hanging on, were many galls of last year, perforated with small (parasitic) holes & some by <sup>many</sup> *Synophori*, all of which had hipples.



42 May 18. Observed 2 ♀ *Myrmica* *beneficus* prying repeatedly into slits but not ovipositing. Once once fixed itself bolt upright on its hind legs, balancing itself behind by its wings as a Kangaroo by its tail, in the manner stated by Mr. Scudder to be adopted by the *Platygaster* that oviposits in the canker-worm eggs, but did not oviposit nor introduce its abd. tip.

The abd. g is clearly peduncled, peduncle  
as long as width of abd. & apparently ~~not~~

*Cecidomyia* gall  
~~*Cyn. quercus-pilula*~~ *Walsh* *syn. pilula* *Walsh* *syn. pilula*  
 larva apparently often goes into the ground  
 to pupize, for I found at bottom of jar (no sand)  
 10 or 12 orange larva (<sup>*Cecidomyia*</sup> dead & dry). Other galls (1)  
 had worm, or at all events succulent larva  
 in them. As this is an invasive gall, probably the true tenant  
 belongs to the larva unknown... 8 Jan. 15 p. 2 & 12 p. 2

May 17. Dry out of galls of g. ficus many dead  
 & empty (description apud Fitch g. ficus. I doubt if  
~~scutellone (page p 47 bottom) may also be referred~~  
~~here with probability [Mistake of jars.]~~

May 19. Pot. Repidos, Long Suberose, Suberose, etc.  
= 2 others.

May 21. Lynx baileyi - from the same place as the first. This is a very pale animal, with a very light brownish yellow ground color, and a few very small, dark spots. It is the normal pale spots. It is the normal pale spots. It is the normal pale spots.

2. *Gomphus posticus*, with inflated abdomen.  
there is a little tail attached to hp of so-called 2.  
ventral,  $\frac{2}{3}$  as long as the segment itself.

May 24. Found dozens of oak-aphid (confused with  
"Lab. & maculata cornu".) Both ends of twigs  
One (cut open) contained pupa <sup>coccinea</sup> spongifica = G.  
row contain full grown larvae. Some of these  
marked.


[varieties, have the <sup>original</sup> nipple absent, but have small nipples scattered  
irregularly on surface.  
Some of these galls (same lot), thin shell, some thick]

the *Synophorus* had ovipositor - noticed  
dark mass in the woolly matter of 2. (over)

[made by a Lepidopterous larva: capital work in gall of G. cinaria  
May 25 Gathered many oak-apples mostly with nipples  
found in several ♀ pupae (of aculeator?) (Common species  
Ruralist Garden) field.  
coccyus }  
thouyfica } See p. 52)

May 26 From creek flats came out Hemipt. larva  
indistinguishable from those of day, & also the Myrmica  
hectica No. 1351.

*Sciepterus solchajensis* O.S. Found 5 dead with galls.  
Also = *Longard* (pink) in one of cells (gummed on previous  
cell) = 4 one, perfect, found loose with galls.

None recent. (is present) The same species from galls  
of *Morus* *prostrata* (Lepidopterous larvae in them)  
Therefore, although no traces of Lepid. larvae in  
Sil. galls, the parasitic wasps must have entered  
them early. So yellow galls must be  = recent




*Cecidomyia* on fuzzy galls, let caused by  
a Tenthrina, 2<sup>nd</sup> by a Lepidopt.  
Probably in many cases where *Cecidomyia*  
(apparently coarctate) are found in different  
galls may be explained on this hypothesis.  
Does remarks on the difficulty of distin-  
guishing them? Doubt of any *Cecidomyia*  
making a gall. *Chestnut* has not found  
a parasite on the corn-stalk Noctuid sent  
me by Emory. Did I credit? *Cecidomyia*?  
See O.S. April Nov. p. 179

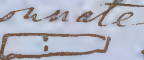
May 27. Galls on *Amorpha fruticosa*. Those  
with large holes (•) contained Lep. pupa: Those  
with small holes or none *Ichneumon*. pupa in cocoon.  
Sometimes those with no holes contain dead Lep. larva  
In none could I find traces of *Vasioptera* &  
its cells.

membrane  
[*Ichneumon*] when first held, ob. sent  
May. Several out today *Vallus Myan*. *Ichneumon*  
June 1<sup>st</sup>. The *Ichneumon* & the *Phaenocarpa* had from galls  
of *Vasioptera*. *Schizopoda* O.S. on *Pipera* fasciculata,  
I find undeniably on similar galls breeding  
the *Vasioptera*, on *Podagraceae*. *Phaenocarpa* different.

June 14. Large crippled *Catocala* came out from *Distichis*.  
Destroyed. Another a day or later. [Edwards, pupa]

June 3. Galls of *Caryocaulis* on *Slit*, *Caryocaulis*  
found above the leaf, flat beneath & with a  
slit there, which eventually gives opening. In May

June 4. Opened several galls obtained May 24 & 25,  
& found 1♂ & 2♀ { *coccinea* } full winged & some  
in larva & pupa: ♀ has 13-j<sup>d</sup> ant. last joint  
long & with a faint  & 15-j<sup>d</sup> ant.

If, as I believe, *Cynips g. coccinea* (= *spongifica*)  
(the difference being only in the relative thickness of  
shell of gall & both kinds occurring indiscriminately  
this spring in the same lot) is the spring brood  
of *c. g. aciculata* (which is a summer & ♀ only,  
like spring & summer brood of *Aphididae*), there  
is no material difference in the structure  
of antennae, both kinds being 13-j<sup>d</sup> with  
the last j<sup>t</sup>.  connate,  
14-joints. But there is a most wonderful  
difference in the sculpture, that of *spongifica*  
being much coarser on Thorax, & according to O.S.  
p. 246 *aciculata* <sup>shape of abdomen</sup> must be confluent *Han*. because the  
others (*spongifica* & *coccinea*) are not autumnal  
but vernal joints. But, on my theory, they  
are all identical.

Very numerous *g. vianis* galls were on white  
oaks. Diameter  $\frac{3}{4}$  -  $1\frac{1}{2}$  inch. Probably *c.*  
*quercus vianis* is the spring brood of *c. g.*  
*centricola* O.S. p. 58 *Trans. Ent. Soc.* He  
distinguishes them by the size of the galls chiefly.



Have found galls of c.g. palustris abundant on two adjoining trees 1st laurel oak. 2nd g. tinctoria. Made only parasites, but am sure the galls were identical, for kept distinct & bred the same parasites. Next year from galls on g. tinctoria bred the c.g. palustris which o.s. bred from that oak. Hence same insect on 3 different oaks.

~~Still~~ aciculata & spongifica are confined at K. I. to g. tinctoria.

I suspect all these species are identical, & that the difference in the galls is caused by the difference in the species of oak. Will they breed transversely, i.e. g. inanis produce aciculata on black oak, & g. spongifica produce centricole on white oak? Try it. Will, again, aciculata produce spongifica on black oak & g. inanis on white oak? Try it.

Noted one or two galls of g. inanis hardly (not spherical) as spongifica.

June 10. Inside central kernel of gall of C. quercus inanis found 3 white larvae [others of spongifica 7 or 8]

June 11. Took in house a much worn I. usipuncta

June 12. Great bulk of eggs on R. h. (Canda) but not hatched yet - 2 or 3 small ones hatched dead, others

pulling out some leaves. They had been only a few days hatched. <sup>could not walk & lay on his side; so B</sup>

A] June 13. Placed in a gauze bag on black oak on Durlap Farm East of RR & just in the opening in the wood before the old fence, South side ~~the~~ <sup>the</sup> ~~tree~~ <sup>tree</sup> off tree, (notches cut on an old deal limb) 5 lively & 2 quips of spongifica & 1 rather weakly & ditto. June 16, undisturbed. 5 dead 2 & alive?

June 14. I notice that hitherto all my galls (except one today) that have produced spongifica flies have been thin-shelled or = c.g. coccinea. Such galls are brown & ripe now. Whereas the hard-shelled & thick-shelled ones are green more or less. Hence I conclude that the difference in the galls is caused by the early or late puncture - the thin-shelled being the earliest. Similarly (on my theory) the aciculata galls are very thick-shelled. There are intermediate grades between the two types of galls. B


B] Gauzed today of c.g. spongifica & lively & 2 & one sluggish & from a separate lot of galls & not in company with any of g. Place, lib. 1/4 in a cedar case (South side) round opening = Snake Place on a young white-oak <sup>on 2 side</sup> on red oaks 50 to 100 yards off found g. inanis galls, placed in a jar by themselves. Hence as in two instances [June 16. undisturbed 2 & dead.]



55 These red oak galls grow out of the stem close to the origin of the leaf, not out of the leaf as usual.

O.S. Day (p. 241) has "*g. rubra*" in most cases *g. coccinea*, which according to Brendel is a variety of *g. tinctoria*. Harris probably made the same mistake when he located this *Confluens* on the red oak. O.S. (p. 243) is doubtful whether his *g. laevis* occurs on *g. rubra* or *coccinea*. Young trees (2-5 inches in diameter) of *rubra* may be distinguished by the bark being smooth & glossy except toward the butt, whereas in *tinctoria* it is rough.

On the whole (see my remarks in O.S. 246-8) I am of opinion *c.g. coccinea* = *spongifica* = *laevis*, & *c.g. aciculata* & *centricola* are the metagenetic type of the 3 first, which three first are generated by parthenogenesis. No species of any animal, even hermaphrodite, can propagate indefinitely without intercourse with another individual, otherwise variations would be indefinitely exaggerated & the number of species thereby produced w<sup>d</sup> also be indefinite.

June 15 The gall of *Phylloxera carya-caryae* splits open ~~at~~ <sup>caulic</sup> X: I have such a gall on the leaf-stalk of the leaflet, split in this manner. Therefore the *carya-caryae* = *c. globuli* Walsh, the insects being undistinguishable. This gall is thus  opening below, like *carya-globuli*, but X not —.

June 16. A few *c.g. coccinea* or *spongifica* galls occur that have scarcely the least vestige of purple at tip <sup>N:</sup>

June 16. 1883

Mr. Cummings observed that he did not know that we have any bird here about that eats the rose bug, curculio, nor caterpillar. He protects the birds, and has protected the squirrels until he found that the common red squirrel is a great destroyer of bird's eggs and young. They even come around the house and gnaw into the wren boxes.

So the flying squirrel, according to Dr. Yalov's report

June 18 Thursday. Had a *c.g. spongifica* (very lively) come out — Monday 22<sup>nd</sup> still alive. & keeping. Had put him in a vial with some white sugar. [No more *c.g.* came out after this date from June 21. Took many imagoes of *Phylloxera* (white-colored W.) in the N.R. House. Trees were full of larva in all stages & pupae. Half (about) the eggs still unhatched. A *seymori* (spotted) & several small *thaphron* on the trees.

Also saw a *dryin* imago (not taken) & 1 or 2 very young larva (only) on the N.R. Crabs. Many eggs ( $\frac{1}{2}$  about) still unhatched. The bulk of them destroyed by the *Phylloxera*. & of *c.g. spongifica* (in a vial with sugar) lived at least 5 or 6 days — perhaps 7.



57) July 1. from ~~an~~ egg-slits of the crab (R. R. tree) ob-  
tained ~~8~~ <sup>8</sup> perfectly hatched tetrigonia, <sup>from 7 different</sup> apparently  
from the shape of head, chl. malefica. They lay  
inside the slits, but were motionless & apparently  
dead. Most of the other eggs are empty, preyed  
on by Myrmica? They were white, eyes dusky. No  
thorns or prickles. X larvae first hatched (mon-  
bracidae) Several other eggs were dusky at tip,  
besides 2 black eyes, similar to one observed  
at Bloomington. Were these Myrmica? Observed  
a dead ♀ Myrmica, <sup>in egg-slit</sup> with antenna fully developed. Some of  
the hatched tetr. (102) lay with the head the wrong way.  
Did not observe any membracide larvae. 1 1/2 mm.

July 10 Head honey-yellow with a lateral  
mandibles black. ~~~~~ 25  
In a w  
the str  
Come to ~~~~~ in more ripe for 2 weeks.



<sup>water</sup> ~~Body~~ <sup>except</sup> ~~black~~ joints 1 & 12 which are honey yellow above & pale  
greenish laterally, <sup>beneath</sup> & as is also the anterior  $\frac{1}{3}$  of 1; both 1 & 12 with a  
lateral shining black vitta above the line of spiracles, which <sup>vitta</sup> on 1  
does not nearly attain the head; joints 2-11 with a whole dorsal  
vitta, & another above the line of spiracles, obsolete ~~on 4-7~~ from  
the middle of 3 to <sup>the middle</sup> ~~nearly the top~~ of 7; beneath the ~~4~~ line of spiracles  
a <sup>thick</sup> ~~another~~ whole vitta on 1 & 2, wider on 1 where it encloses the spi.  
which is black. Legs black, shining; origin of legs dusky; prolegs  
pale — watery green with their origin the same, but a little dusky  
on <sup>pts</sup> 6 & 7. <sup>Venter</sup> ~~Venter~~ <sup>beneath</sup> pale watery green, obfuscated on <sup>pts</sup> 4 & 5.  
3 ~~2~~ specimens, alcohol. vial N. 1.



Living in the inside of the stem of oats in the ~~4th & 5th~~ joints <sup>two or three of the middle</sup>  
~~above the roots~~, the division between which it gnaws through,  
cutting off partially the ~~last~~ <sup>last</sup> joint inside the sheath so that the  
oats are blasted & come to nothing, & perforating a round hole  
<sup>some one of the</sup> in ~~the 4th~~ joints .07-.08 inch in diameter for the moth to make its  
exit, a 16-footed Calcepsillar .7 to 1 inch long & .08 to .10 inch in diameter.  
Head honey-yellow with a lateral black stripe tapering at base & tip;  
mandibles black. ~~~~~ [T.O.]

About end of June noticed one of  
these larvae at large close to a growing  
piece of wheat in Wendell's field.



57 July 1. from ~~an~~ egg-slits of the crab (R. R. tree) ob-  
tained ~~8~~ perfectly hatched tetrigonias, <sup>from 7 different</sup> apparently  
from the shape of head, chl. malefica. They lay  
inside the slits, but were motionless & apparently  
dead. Most of the other eggs are empty, preyed  
on by Myrmica? They were white, eyes dusky. No  
thorns or prickles. X larva first hatched (mem-  
bracidae) Several other eggs were dusky at tip,  
besides 2 black eyes, similar to one observed  
at Bloomington. Were these Myrmica? Observed  
a dead ♀ Myrmica with antenna fully developed. Some of  
the hatched tetr. (1012) lay with the head the wrong way.  
<sup>not observed any membracidae larvae.</sup>

June 31. Observed a dozen & more full-winged  
tetrigonias on R. R. crab, but C. not catch any.  
Also, on a cursory inspection, several very  
young tetr. larvae.

R. B. There had hatched between June 24  
& 31st 2 or 3 membracidae larvae from a bottle  
full of pear crab & Elm infected twigs  
taken to Bloomington.

July 2. Saw a half-grown larva of *Phenocia*  
*capitata* lay well off with a group in  
to north, half as large as itself, on my  
ambrosia which was beating.

July 2. From earth on which I had placed  
infected saws obtained *Conoscelus*  
*posticatus*? *Sphenon*  
underground.

July 4. Met the small common *atoma*? from  
g. *canis* galls. (58)  
*Corticaria pumila* Melsh

July 3. Examined willow galls - three by  
one larva *Microgaster*.

July 4. Noticed pupa of *Conocephalus* & also of  
*Caloptenus* *bruttatus*? or the closely allied species,  
both of which had short wings, flattened & veined  
in the peculiar manner which in *Locustada*  
& *Gryllida* seems always to indicate the pupa state.

July 5. R. B. Saw full of leafhoppers - many  
half-grown larvae & pupae. (Aug. 15 opened all drawers  
in 7) in 1000 - all empty.

July 9. Recd. from J. H. Carroll Co 4 larvae,  
flatish about .2 long, with a lateral & dorsal  
row of spines & two bifurcate caudal appen-  
dages. Head large & flat. Larva of *Cryptanthe*  
*ampla*, [or *phenolia* *grossa*] a specimen of which  
was brought me by Dr. Velie from Genesee  
infected locusts, he supposing they destroyed  
the locusts, as J. H. does.

Saw *Perilampus* *marginatus* Say, inside a log.  
about 7 or 8 inch long under a log.

July 10. Mr. Miller of Pleasant Ridge informs  
me many oat-straws with him are attacked  
by a worm 1 inch long - so thick, inside  
the straw just above the <sup>one of</sup> <sup>lower</sup> joint. Oats  
come to nothing. Won't be ripe for 2 weeks.







Bred last night, destructor issues singly from Cecidomyia destructor, & viridescens in July 25 had swarms from Cep. larvae & pupae a cottony envelop. Entomophagic species, Chrysomus dimorpha, which breeds the larvae has been seen upon a mass of white fluff, & sat each in a kind of hollow in it, moving to & fro in that place.



† Yel, destructor spms singly from Cecid-  
myia destructor, & viridescens in  
swarms from lep. larva & spms a col-  
ony envelop. Entomophagic species?  
Chrysus discocampa, which breeds



inside a pupa, a 3<sup>rd</sup> habit.  
But, in all these cases, it is not  
the chief fly that spins, but  
the *Microgaster*, *Pezomachus*, or  
that does so.



61) Noticed also among the subgalls 2 specimens of  
an *Eurythoe*? (preserved), new to me?  
Also 6 or 7 anthecoris pseudochrusche Fitch,  
4 or 5 of its larva.







Prodigious exuberance of insect life!

The Lepidopterous insect, being much smaller, must be different from that formerly bred by me from these galls. It is, July 23 one came out.

July 16. Examined Slaughter-house oaks. No  
new galls formed. Out of about ~~16~~<sup>27 or 18</sup> galls,  
left on a particular tree <sup>3 or 4 (opened)</sup> ~~one half~~ <sup>17</sup> contained  
noch larvae, & on the whole full one half  
were not perforated. Will these produce  
aciculata in the fall & spring?

Crab-trees generally <sup>now</sup> have their leaves  
spotted with large orange-colored spots,  
observed 5 or 6 weeks <sup>in the old grassy ground</sup> ago, & which now  
on their lower surface have either a  
fungus or a minute conical cup-gall  
growing from the spots. [A fungus - "cluster  
cup" - see article in Amer  
Revic.]

July 19. Noticed incipient  
galls } on R. R. willows, in which I found cruciform  
pale } larvae (legless?) <sup>in</sup> long Hef. Interior of galls  
nothing. } April 15th - 1895

July 20. Today & yesterday I have 9♂ & 13♀ of *Glyphe* (*ceraphron*) <sup>near</sup> *destructor* (?) they come out from an <sup>irregular</sup> mass of white silken cocoons found in the old grass-land this summer (about end of June) on a stem of grass & enveloped in floss. The ♂ have abd.  & profile , & the ♀ abd.  & profile  or triangular not flat. It is only the ♂♂ () that have a white spot on the base of the <sup>in front of</sup> ~~posterior~~ <sup>anterior</sup> of abdomen. They are lighter green than ♀♀ generally. I am certain about their coming from the cocoons, because I moved the cocoons from one jar to another last night & specimens came out in both jars, () yet I saw yesterday no holes in the cocoons. No braconids yet come out from the cocoons. W.B. July 22 1883

July 25. [The color of above vases greatly, & I believe them = destructive] Say =  
 Fred & Gnathia <sup>undecim</sup> ~~vittata~~ from a dirt cage <sup>Waldm.</sup>  
 filled with dirt this spring, in which had leaf-feeding =  
 caterpillars on oak & perhaps on birch & thorn. <sup>Waldm.</sup>  
 makes larva feed under stones on lichen. Was it <sup>Waldm.</sup>  
 among the dirt when put in? <sup>= full case</sup>

Met last night 5 ♀ of *Sphingocampa designata* <sup>10000</sup>  
which copulated in the cage, I were stuck <sup>1</sup>/<sub>2</sub> an hour

July 25 had noticed 10 days ago a mass of  
cocoons (*triconide*) in process of formation.  
The larva had already spun a mass of  
white flaps, & sat each in a kind of  
hollow in the mass, so I got the fore



63, part of his body much as a Syrphid larva does groping for Aphides. Today secured the mass, containing cocoons as usual.

July 26. ♀ *Sphinxgampa dactylina* came out today which had the white spot near the Costa invisible & the other very small & scarcely noticeable.

I was mistaken in thinking that in *Cordulina* the ant.  $\Delta$  is always full as robust as post.  $\Delta$ , & always slender in *Schellina*. In *Macromia flavipennis* ant.  $\Delta$  is slender, & in *Catantopus* epoxine  $\Delta$ 's are nearly alike.

From Baird's N. A. Ornithology

Order - Grallator

Suborder Gralla.

*Fube Vinicola.*

family (always) - ide


subfamily — —ina

Section — ca

then genus Species

Ampneustic means a dipterous larva with two pairs of spiracles, one anterior the other posterior. When the number of spiracles is normal, that is one pair on the thorax & one on <sup>each</sup> all (?) abdominal segments, then the larva is called peripneustic. Finally, when there is only one pair

(as in *Ctenophora*) at the end of the body, (64)  
the larva is *metapneustea*. The terms have  
been invented, I think, by Haliday.

n. B. Fig. of Tabanus M.S. Olsen Sachsen May 13. 63  
(Westw. II. p. 538) is represented with spiracles  
on all abd. segments but anal 

Larva of *Bibio albipennis* is amphipneustic, & has the supernumerary false segment between head & true 1<sup>st</sup> segm. found "in all Cecidomyiidae" Loew p. 181 O.S. ubi vide!!!  
 (Head-head & segm. 1 down)  
 segment 2 easily mistaken for 3 segments.  
 [P] see p. 63 [Loew p. 181] "Number & position of the stigmata are normal, viz. one pair on the 1<sup>st</sup> thoracic segment, & 8 pairs on the 1<sup>st</sup> 8 abd. segments, so that the 9<sup>th</sup> or last segment bears none!"

Westwood says "larvae of *Bibio* have 20 spiracles"  
*B. albp.* has a distinct labrum & mandibles & maxilla<sup>& labium</sup>  
 an cruciform mouth. Segments 1 & 2 have each a double  
 row of thorns; ~~2~~ 3 - 11 single row (terminal) 12 none sep. 67

Aug 20. on R.R. bottom saw Anna Jarvis, &  
light on a tall weed. When a swallow  
rushed on to it & carried it off under my  
very nose. Hence, birds pro tanto injurious.

May 21. Noticed a lot of bald-faced hornets swarming  
like a swarm of bees round the trunk of an oak, from  
a part of which (bored with holes by some borer?) they  
had apparently stripped <sup>or tapped by sap-sucker</sup> the bark. <sup>No</sup> They did not  
enter the holes. The nest in the tree I  
saw or two after and saw them there, as well as <sup>many</sup> vespa  
in <sup>open</sup> places caruleas. Tree badly bored by sap-sucker & probably  
losing sweet sap. 3



65 Aug. 5 - examined 56, 62 of crickets which  
had laid eggs 3-jointed: 1st long, slender, 2nd  
short, 3 moderate. Mouth 2-3. 1st joint  
15-30 inch. 2nd joint nearly same size.  
but see also Feb. 11. 8131 p. 94 my note on larvae.

*Proctos venosus* Burm. Miss America L. Bliss  
Aug. 19. 1863 saw a "squad" of these insects covering  
four square inches perhaps, marching up & down  
the trunk of an apple-tree with the regularity  
of well-dressed soldiers. (specimens sent me.)  
They were so close together, that looking across  
them their feelers [antennae] resembled a thin  
growth of hair. Below them, on the bark of  
the tree, were many of their shed skins.

What, from her description, must have  
been *Aphis avenae* occurred on almost every  
of wheat in her vicinity, sticking close  
between the kernels, but were not noticed  
by her after the grain ripened. It was not  
supposed that they had injured the wheat  
by the farmers.

Sep 5 '63 Took 100 *helicoverpa* (2) 3 *trichopoda* <sup>americanum</sup>  
*macassar* *americanum*

Sep. 6 opened 2 oak apples (c.g. spongia  
gathered in spring) & found a black pupa,  
apparently *accellata*, in each.

66 Sep 7 Found Tabanus larva with his fore-pat  
in the mouth of a planorbis shell - mollusk  
on which it apparently ate right of 9 mollusks  
cracked two, replaced 7 - cracked ones had meal in them

Sep. 13 of the 7 ~~two~~ <sup>three</sup> were more empty shells  
(a fetid odor having been observable in the  
jar since before Sep. 7) the other 4 were alive  
(certain). Replaced 4 in jar. - Larva was  
most vigorous at night. When water had got very  
stale floated at surface; when changed, went  
below the surface

Sep. 15 Watched tab. larva work his way into a  
planorbis. After he had withdrawn found he  
had eaten the contents of all but the tail end.  
His pseudopods great help working his way in.

Sep 16 Into another planorbis (morning). At noon  
emptied the jar; one of the four was partly devoured,  
leaving us with the others the tail end which  
apparently he c. not reach & the foot; one  
(the one he worked at this morning) was ditto:  
one was still alive - all that remained of the  
original number.

Sep. 17 Recd. from Mr. Cutter (Beverly Ill) *Silvanus*  
*luridus* - preys on wheat 1 year old (very  
plenty) that is considerably damaged. Larva  
also plenty. [Found plenty in dried peaches]

87th Day *Cymus* g. *accellatus* (in jar) out of an oak apple: real  
day day out 6.



17<sup>th</sup> Sep. A larva of *P. Tarnus* went to pupa & suspended itself, not spinning any loop.

Had been a little injured in the mesh of the I saw it - [Dorothy, Dearborn before nothing]

Sep. 23 The remaining Planorbia & 3 more I had from the Tabanids larva all devoured. Shells empty. Gave him fresh water & a lot more.

Sep 29 Dr. Parry's niece informed me of an insect (like the *Pirater* pupae she thought) being taken out of the ear of a friend, where it had staid 6 weeks. She thought Dr. Fountain had the insect preserved.

[Could not get to see this insect.]

between Sep. 23 & 30 he had eaten 6 planorbia

The Utica Observer says that the hop crop is generally picked in Southern Oneida and Madison, some in poor condition, from blight and the plague of lice, a pest which made its first appearance on the vines of this locality the present year.

The Elephant is said to be rehomagat & to copulate by backing up together

Weeks 21-23<sup>49</sup> December larvae of odynurus with a body of 13 segments, 1<sup>st</sup> & 2<sup>nd</sup> last without spiracles. Probably the 1<sup>st</sup> so-called segment is analogous to the "supernumerary false segment" in *Pieris* & *Cecidomyia* (see also p. 67) the so-called 2-11 are figured by Westwood as many spiracles. Fig 87.5

Oct 25. Bred 4 *Cynipis g. aciculata* from galls gathered very early in spring: 3 of them shell thinish, one shell very thin, as thin as any seen by me. Preserved it. It had also a distinct nipple at tip. [See Sep. 17<sup>th</sup>] Bred also 3 others from galls gathered early in spring or summer, one of which had a decided nipple.

*Episphaera* & *aciculata* are different species, why all they occur in the same locality, when 99 out of a 100 localities have neither species? If *aciculata* does not propagate by parthenogenesis, the disposition to propagate that type of the insect is a common one of many generations. *aciculata* lays off which produce perhaps 5 or 6 only or chiefly 5 or 6 others. Comply with the principle of *Episphaera* in some cases impossible that *aciculata* is (coming out in the mass) lay off when 5 or 6 *Episphaera* come out. My 3 *Episphaera* on grape baps laid out a short time. The young of *Sarcophaga* & *natant* taken off the "Poon" from the spring oak after

In honey-bee colonies occasionally *Episphaera* drone-eggs. (Beekeepers Westwood 1879)




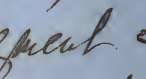
Oct 27 cyrtus (g. aculeatus O.S.) several  
came out from crippled galls, & from galls  
covered with mummies all over. In all 11 or 12  
came out.

Female of *Cordulegaster bidentatus* seen by  
Selys to deposit "on herbage, in land a little  
marshy, but almost deprived of water" in  
June & July, "which proves that the larva  
can live almost without water". But  
probably in other months these places were  
full of water (Mon. Graph p 342 note)

In *Aschua quadriguttata* the basal area  
has crossveins. It all my other *Aschua* & *Anan*.

The yellow bee, as H. Fargues well observes, (I  
p. 253) being unable to gather pollen, there  
cannot have been predominantly only ♀ & ♀♀  
afterwards. - *Hymenophyllum* primordial

What can be the use of the ocellus in *Gomphina*  
& *Aschua*? - <sup>tuft on breast of Turkey</sup>

Larva { <sup>Ephestia</sup> <sup>Fitch (now Delepers)</sup> <sup>tree</sup> dried peaches - lepidopterous -  
16-footed - legs normal - length .40 inch, breadth  
.07 inch. Head rufous,  - 1st segment   
rufous-horny interrupted in the middle - rest all  
yellowish white, with long sparse hairs -  
spins a thread & hangs by it - Dec 17 '63

Also 2 specimens of a small parasitic Braconide

Larva of *Silvanus surinamensis* found abundantly  
with the imago in dried peaches has antennae  
(filiform) as long as the body is wide.

... & stick to it as men-  
... generally speaking. ...  
... have given satisfaction ...  
... I trust that we may ...  
... "We study to please" ...  
... on almost every ...  
... return of insects ...  
... E. J. Cresson

Honey in abundance is "the production of a small  
wasp called *matajeh*, which builds its nests on the  
branches of the trees in the shape of a large  
ball. The sting of this insect is so distressing that  
persons affected by it become feverish & benumbed.  
Therefore, in order to protect ourselves of its delicious  
honeycombs, we took the precaution to smoke  
out the wasps &c. Puez, Wild scenes m.s. p. 345

In the Bay of Maracaibo garden vegetables are  
raised on *barbacoas*, several feet from the ground,  
for the purpose of protecting the tender shoots  
from the depredations of red ants. Were this  
precaution neglected, the entire crop w<sup>d</sup>. disappear in  
a single night, the time usually chosen by these pernicious  
insects for their marauding excursions. *ibid.* p. 390.



yellow female of burrow.

One of our Mem-  
bers says that he has a specimen, reared

by him I believe, that has <sup>pair of</sup> wings black,

& the other dark-yellow. <sup>Hop's specimen of Dytiscus W. F. 183</sup> It is a fresh

specimen, & in no wise rubbed. <sup>afterwards told that both right wings</sup> It is a

curious variation indeed.

are the same color.

With many

return of insects

E. J. Cresson



We always use Camphor, & stick to it as  
the best preventative, generally speaking.

I am glad that we have given satisfaction  
in printing your paper, & trust that we may  
continue to do so hereafter. "We study to please,"  
altho' a common phrase, stuck on almost every  
Theatre curtain, yet




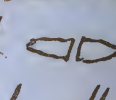
Oct 27 cyano g. aculeata 0.5. several  
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covered with nippers all over. In all 11 or 12.  
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selfs to deposit "on herbage, in land a little  
marshy, but almost deprived of water" in  
June & July "which proves that the larva  
can live almost without water". But  
probably in other months these places were  
full of water (Mr. Gough p 342 note)

In *Aschna quadriguttata* the basal area  
has crossveins & all my other *Aschna* & *Anax*.

*Exochus* is very common in A. N. N. N. N.  
The yellow-bellied *Aschna* with obscure (I  
p. 255) being unable to gather pollen, there  
can not have been previously only ♀ & ♀♀  
afterwards. In *Demorpha* *primitiva* etc.

What can be the use of the ocellus in *Gomphus*  
& *Aschna*? = tuft on breast of *Taraxacum*.

Larva <sup>of *Ephraesia* (see Fitch (New Orleans))</sup> *inferna* dried peaches - lepidopterous -  
16-footed - legs normal - length .40 inch, breadth  
.07 inch. Head rufous,  - 1st segment   
rufous-horny interrupted in the middle - rest all  
yellowish white, with long sparse hairs -  
spins a thread & hangs by it - Dec 17. '63

Also 2 specimens of a small paradiac Braconide  
spine the white, yellow, black

Larva of *silvaux surinamensis* found abundantly  
with the imago in dried peaches has antennae  
(filiform) as long as the body is wide.

The ruff-necked bird  
of L. Mar. has the  
same habits as the  
A. N. N. N. N. N.  
the *Aschna* etc.  
p. 27

Honey in abundance is "the production of a small  
wasp called *matajeh*, which builds its nests on the  
branches of the trees in the shape of a large  
ball. The sting of this insect is so destructive that  
persons affected by it become feverish & benumbed.  
Therefore, in order to protect ourselves of its delicious  
honeycombs, we took the precaution to smoke  
out the wasps &c. Puez, Wild scenes in S. A. p. 345

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raised on *barbacoas*, several feet from the ground,  
for the purpose of protecting the tender shoots  
from the depredations of red ants. Were this  
precaution neglected, the entire crop w. disappear in  
a single night, the time usually chosen by these pernicious  
insects for their marauding excursions. Ibid. p. 390.



Jan 20 1864 Almost all my galls of *Gynipz* *g.*  
*inanis* <sup>(15 or 16)</sup> when opened contained 8 or 9 chalcide  
 larva, & one found today on the tree contained  
 the same. A single one in jar contained a  
 dead & very mouldy (♀?) of *C. g. inanis*, as  
 seen by the sculpture of thorax on washing  
 off the mould. — on opening 30 or 40 galls  
 of *aciculata*, found one with precisely  
 similar chalcide larva, clinging together, like  
 the others, so as to form a round ball.  
 In these 30 or 40 galls found nine *aciculata*  
 either dead or perfectly torpid but not dried.

[illegible]



7<sup>th</sup> [viminalis] = *S. ovata*  
 20<sup>th</sup> larva - .22 long, pale dusky - greenish on  
 concave - back darker, with a large blackish spot  
 on the face & a smaller lateral one looking like eye.  
 legs 6, prolegs on all but 1st joint, but somewhat  
 tuberculariform & flat - slender, delicate - Head not  
 found at nearly identical larva. Larva in g all  
 stridulans - legs long but prolegs, tubercles & apparently  
 functionally important. [So also in viminalis]

In gall *S. stridulans* between scales several very  
 distinct condomyces of larva each in 2 or 3 - some  
 real whitish cocoons of which found at both ends  
 Head some 12-14 in back with 2 or 3 cocoons  
 joined together. No gall contained 15-16 cocoons.

[Found from same plant as 20<sup>th</sup>]  
 Feb 20<sup>th</sup> Larva in *Trifolium* Miller gall - [Found at mid-  
 July] - [Larva in 20<sup>th</sup> July] - [Larva in 20<sup>th</sup> July]  
 the middle of July & had same color as 20<sup>th</sup>  
 in a thin whitish cocoon, but quite large - than itself.  
 In one gall the larva had eaten out head & head of  
 the larva. No larva in 15 (chick) & larva  
 showing plainly that it is dead. Found 8 or 9,  
 all in larva state, & 11-12 - [chick] maps inside  
 the cocoons, which were very fresh when dis-  
 cussed.

These probably are the  
 yellow minute [chick]  
 found from these galls May 13

24<sup>th</sup> Found galls *g. erinacei* on white oak. A number  
 of half-confluent central cells, empty, in a narrow row  
 the stem (as in sponges) with larvae in them. Seen  
 too probably for *g. piceae* (Fitch) & 4<sup>th</sup> year on veins  
 below 5<sup>th</sup> on veins above & *g. piceae*, & bands  
 of *g. piceae* (Fitch & Co.) has only 2 central cells divided  
 by a thin partition. [In gall is 1st proleg, & seen at 1st proleg]  
 Feb 20<sup>th</sup> Found almost all the *chick* galls per-  
 forated & empty, some containing the larva - pupa skin.  
 In one, however, found a white larva & long, in another  
 a hairy white cocoon - both preserved, with some more.  
 In the larva of *Trifolium solidaginis* (black when  
 the larva was of dark to head) noticed egg-like  
 appearance in head segments, with a secondary  
 dorsal spine from it.

In a *vernonia fasciculata* gall, gathered last summer  
 (two confluent galls) one (hollow) contained a whitish  
 larva with a large <sup>much longer</sup> lepidopteroid head & large brown  
 hooks or mandibles, 6 legs, no prolegs, & a  
 large pseudopod on top of ft. 6-11. Probably I  
 may have mistaken this for lepid. larva. It  
 has not the head. Tenthredinid? Curculionid?

Found 4 galls recent (dark parallel) &  
 tube galls, [filled] [filled]

Concealed mostly except the sutures [which are  
 that look like large intertuber convoluted] & are  
 probably masses of eggs (many specimens)







27 March 7. Found a *hyleus* - which hairy larva  
is one of the very smallest of the strobiloides gall,  
near R.R. Calcutta.

March 7. Found immense number of *Strobiloides*  
black eggs, 1/4 inch long & 1/8 inch wide  
as in *brassicoides* rather not beyond color  
opposite base - growing to the left. Whole  
blackened on one side. Aphid?

March 16. Found a "seminator" gall <sup>(preserved)</sup> on a last year's  
(dead) shoot of Blackberry, 1 1/4 inch long & 1 inch across,  
egg-shaped & woolly. Pale dirty brown. Wool about  
30 inch long, then cells <sup>1.0 inch long</sup> united apparently in a roundish mass  
by corky matter & pretty close together. Cells empty.

Found egg-shaped hollow galls 3/4 by 1/2 inch on tips  
of shoots of red oler dogwood. Aphidous? Kind  
about as thick as stout *spongifica* galls.

Found many "brassicoides" like galls on tips of twigs  
of young stunted plums. [Cells.] Cells all  
empty.

Found in g. frum gall one undoubted cell  
on the circumference beside central cell. Cells empty.

Found a small black chalcidide inside cocoon of c.s.  
[amaranthus] *gnaphaloides*

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[amaranthus] *gnaphaloides*

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[amaranthus] *gnaphaloides*

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[amaranthus] *gnaphaloides*

Found a small black chalcidide inside cocoon of c.s.  
[amaranthus] *gnaphaloides*

From Rev. Green's Book  
Tum-box - oval 2 1/8 x 2 inches & about 4 inches  
high  
Green uses "treacle & a little rum" for sugar?  
a saturated solution of oxalic acid & a little for  
killing



22 Moths cease flying from a little after 9 to a little before 11 P.M. Moonlight & windy. & cold nights bad. A warm misty rain good.

— more liable to for to grease than ♀  
— Soak <sup>small</sup> greasy insects in benzole, <sup>entire</sup> ~~in benzole~~

To kill mites — moisten the drawer over a cloth moistened with naphtha for an hour or more — (Hafiday)

"Take off abdomen & expose to heat of fire at 6 inches distance. If grease has run into thorax, the thorax parts must be soaked in benzole. If abd. very full of grease, the fire trips it to surface. Simple soaking for a few days will remove the exterior grease. Slit open abd.

soak for 24 hours, then boil as rapidly as possible in about 1½ oz. benzole in a water bath & a covered vessel (adding a little occasionally). Remove & wash with fresh benzole & dry on blotting paper. If done enough, abd. again exposed to fire will not try out. This is the test of time." Dr. Wallace (Label abd.)

April 3. Cut into my spongifica galls. Out of 137 gathered June & July, came 38 aciculata (all dead) 13 larva do & 2 pupa ditto; also 7 dead & dry chalcid. (2 Decatoma & rest Callenome) & 2♀ callenome pupae, dead & decayed.

Out of 36 galls gathered Sep. 17 came 1 aciculata (dead) 2 larva do & 1 pupa do; also 2 Callenome (1 dead & decayed), one mass of chalcid. larva (all dead) & 5 whitish hairy chalcid? or ichneumon? (one of the 5 came from the June & July lot of galls.)

From "pseudo-centricola" galls, some of which were mixed with the spongifica galls & may therefore possibly have grown on Black oak. Came 8 chalcid. alive & kicking, 26-jointed

Hundred  
3 lines as long as wide. .03 inch long & blunt pointed at each end) in the bottle where placed. What became of them eggs or pupae? Strobil. galls not yet found

April 8. 14 Pseudo-tuctorix gall gathered on the ground under the Red Oak at Lib. 4-maculata corner. Two (opened) contained each one ~~small~~ whitish larva.

April 10 gathered many more in the same place. The cell of 2 spongifica & the filigree adhere to it strongly. Noticed a Black oak on the bluff with 12-20 spong. galls on it (4 or 5 gathered) & 10 yards from it a Red oak with many galls

a Red oak(?) from which I gathered many galls had g. pilulae galls on its leaves.



large 201111

white pelose

liver - spon

feces, salt

Sept 3, 15



June 25<sup>\*</sup> had  
opened 2  
large boxes  
a few birds



229 Moths cease flying from a little after 9 to a little before 11 P.M. Moonlight & windy & cold nights bad. A warm misty rain good.

— more liable to for to grease than <sup>small</sup> ~~large~~ <sup>entire</sup> ~~partial~~ <sup>greasy</sup> insects in benzole, ~~in a bath~~

To kill mites — invert the drawer over a cloth moistened with naphtha for an hour or more. — (Haliday)

"Take off abdomen & expose to heat of fire at 6 inches distance. If grease has run into thorax, ~~the~~ those parts must be soaked in benzole. If abd. very full of green, the fire brings it to surface. Simple soaking for a few days will remove the exterior grease. Slit open abd.

soak for 24 hours, then boil as rapidly as possible in about 1½ oz. benzole in a water bath & a covered vessel (adding a little occasionally). Remove & wash with fresh benzole & dry on blotting paper. If done enough, abd. again exposed to fire will not try out. This is the test of time." Dr. Wallace (Label abd.)

April 3. Cut into my spongifica galls. Out of 137 gathered June & July, came 28 aciculata (all dead) 13 larvae do & 2 pupa ditto; also 7 dead & dry chalcid. (2 Decatoma & rest Callenone) & 2 Callenone pupae, dead & decayed.

Out of 36 galls gathered Sep. 17 came 1 aciculata (dead) 2 larvae do & 1 pupa do; also 2 Callenone pupae (dead & decayed), one mass of chalcid. larvae (alive & preserved) & 5 whitish hairy chalcid? or ichneumon? larvae (preserved) <sup>opened Aug 4 & found 1 Callenone (larva) & 2 or 3 ditto pupae.</sup> <sup>possibly the mass</sup> One of the 5 came from the June & July lot of galls.

From "pseudo-centricola" galls, some of which were mixed with the spongifica galls & may therefore possibly have grown on Black oak. Came 8 chalcid. alive & kicking, <sup>26-jointed</sup> <sup>2 or 3 jointed</sup> <sup>26-jointed</sup>

Hooded  
3 lines as long as wide. .03 inch long & blunt pointed at each end) in the bottle where placed. What became of these eggs or larvae? Strobil. gall. not yet found

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April 10 gathered many more in the same place. The cell of 2 spongifica & the filaments adhere to it strongly. Noticed a Black oak on the bluff with 12-26 spong. galls on it (4 or 5 gathered) 10 yards from it a Red oak with inanis galls

A Red oak(?) from which I gathered inanis galls had 9-pitulae galls on its leaves.

Most of strobiloides still contain results of larvae on the paper it is paper, tinged with saffron.



81<sup>ing</sup> The larva of Cad. Verminalis Sw sometimes goes  
under ground & sometimes transforms within the  
willow leaves deformed by it" Loc. Del. p. 184  
[Hugh Miller] "fell short of that highest faith" <sup>note</sup>  
which knows that all truths must harmonize; &  
which is therefore content trustfully to follow the  
cordance whithersoever it leads!" Herbert  
Spencer's Illustrations of Universal Progress.

3. batatas  
 pupae - 3 only. batatas pupae from 3. batatas  
 pupae - found on one two of the large batatas  
 pupae <sup>5</sup> pupae half exserted from holes in them.  
 Preserved them with the insects on card.

*Lobelia* ~~Hill~~ N. helva, <sup>+2</sup> the plant in flower, red in  
page 102, very small - light yellowish green. In fruit.  
Horn of lady's fingers or very minute. Spine of the leaf.

The batatas 2nd row 1st col. after the 1st of the  
 row is nearly as in the batatas 1st row.  
 in batatas 2nd row 1st col. batatas 1st row.  
 Species of batatas 1st row. batatas 1st row.

*Syntherisma* No. 1 <sup>near Thom. Hill</sup> hill road Culcutt, just south  
of Swatara (Flora April.) The golden yellow  
= *S. polyzona*

Nov. Karl road Culcut. 1st bush, 2nd bush.  
Life nature? both ♀? 4/10, 4 = Stratioides.  
B. cordata

$\Delta = 4$ , <sup>Sup. edge</sup> East wall towards NW near N.R. Gate  
 (wall) (i. apparently = 10 PM / May 7<sup>th</sup>) (see 10<sup>th</sup> July)

423. Salix repens // Myosotis Juss. Gall

10000 ~~small~~ ~~black~~ ~~in~~ ~~the~~ ~~field~~ } flowering specimens for  
the ~~herb~~ ~~garden~~ ~~at~~ ~~the~~ ~~field~~

943. May 7. The row of tall willows beneath the R.  
containing only East of it, in S. nigra & hastata S. enigma

W. L. Spring. Sailed before (Sunday) morning only a  
few birds out in trap & showing young adults.

Keef still here. About May 1<sup>st</sup> there as well as other years  
- had them fairly & took a sign in, the transportation of  
Saban (C.R.) superseded a whole lot in leaf  
F. showing young catkins.



[10 Specimen]



35 P. <sup>marginatus</sup> ~~marginatus~~ pupa (reared out of cocoon - still shows all tracheal streaks on segments - thorax somewhat rounded in with a short tracheal protrusion from the tips of prolegs. trachea twice as long as trachea 28 above the origin of each antenna.

3. Cecid. strabil. <sup>occasional</sup> on upper surf of abd. blackish, with <sup>long</sup> <sup>white</sup> hairs on each side. Lower surf covered with dense black appressed hairs. Length of wings Apr. 10. 1888. San Francisco.



Chickadee - 19 May. 07 miles, yellowish orange, with brown  
brownish markings, the head "faded" yellow, etc.







2 9<sup>th</sup> of which it is seen to be dark blood-red. The  
thorax blackish, wings of wings & above, brown  
white have color of abd. Thor. Viper. attached  
so as to appear 2.

Found 7 or 8 wingless blackish aphids on fresh go-  
heads, trifolium - galls.

Gathered numerous *G. podagrace* galls (Vorticid)  
almost all were much bored. The primary  
diameter of the hole in the preceding autumn?

[had no *G. podagrace* this year: a few days too late.]  
Apr. 27 C.S. *G. podagrace* came out, and, I suppose,  
but with the common, except a narrow cuticle  
completely covered with brown hair, left rubbed  
off when underneath *Leptogaster*: ovis. also  
brown.

Apr. 28 *Chelidonium* det. holmally 25 - found (23+2)  
last pt. trophic. Thor. abd. brown black, no red,  
venter covered with white hairs, on removing a portion  
of which it is seen to be dark blood-red. It was  
found in mass, salutes nervously. Head not like from  
from behind.

*Strobiloid* 27. Thor. and brown black. Antennae dark  
blood red nervously, especially when viewed from behind.  
Abd. Venter covered with white hairs, on removing  
which it is seen to be dark blood red.

Apr. 29 The *Strobiloid* found in many scales of *Strobiloid*. has a distinct line - but head - brown  
Larva? not yet. Found in the dark recess, with

the head protruding, a protuberant (broken but preserved)  
& another at large under scales of same gall. Both  
preserved on same card.

It is singular that under scales of *G. podagrace* occur  
completes so often. Found *G. podagrace* very numerous. *G. podagrace*  
found in deep yellow *G. podagrace* *G. podagrace* *G. podagrace*  
found large chalcid. *G. podagrace* *G. podagrace* *G. podagrace*

There are only *Thoreux* *Thoreux* on *G. podagrace*.  
pupa

Found two 1 that had been eaten into by the  
lepid. larva. Therefore must have been in that state  
since summer of 1883, when lepid. larva existed.

Apr. 30, 53 small *G. podagrace* *G. podagrace* *G. podagrace*  
of all sizes brown hairs with broad red cuticle.  
Also ditto 125 *Strobiloid* galls.

Found 2 recent *G. podagrace* *G. podagrace* *G. podagrace* galls  
on *Strobiloid* *Strobiloid*. Placed with others. Short still  
may (not *G. podagrace*) still in larva in the field.  
one in pupa. Some empty - the 1 was full  
& full in the field: in my collection almost all  
shorter than a leaf.

Very numerous *G. podagrace* & other Chalcids. (the  
action from *G. podagrace*) *G. podagrace* today apparently  
for the *G. podagrace* *G. podagrace* *G. podagrace*  
which have produced *G. podagrace* *G. podagrace* *G. podagrace*



93) In Chalcididae the venation is the basal side of the radial area, which in some species is complicated by a hyaline vein. The anal vein (as in Lygids) is present & hyaline. The veins to the hind margin vein & cubitus are obsolete, but there is a trace of a 1<sup>st</sup> transverse vein.

May 3. Found 3 <sup>galls?</sup> from strobil. galls (under side of gall 2) for isolated in bottle. Identical with numerous specimens found from strobil. galls. The pupa, which had worked its way out of cocoon in the bottle, thor. pale brown black, abd. sanguineous. Horns - strongly at 130°, acute & terminating in a small acute horn. No principal lar. bristles behind horn. Thoracic bristles slender, 1/2 as long as width of horn. Notum of horn dull saffron. with two brown spots the central saffron. Horns abd. tinged with brown. 1st Chalcid. gall, 2 on 3 Chalcid. solitary pupa 1, 3 on 4 with (each) 7 or 8 Chalcid. pupae (but from 1 cocoon) 2 cocoon pupae & 2 larvae.

Found a second case on the Bluffs today where a red oak with *g. cineris* galls grew within 50 or 60 ft. of a black oak with *g. spongifica* galls. Judged the species by the height that the rough bark ascended the stem. Each was 4 or 5 inches in diameter at butt. [It was a black oak June 26]

Some weeks ago noticed a single *spongifica* gall on the clump of trees near slaughter-house, previously supposed to be destitute of that gall.

The long cocoons I send a dealer of strobiloid galls gathered today were <sup>very</sup> many of them flattened just plump (just as then a long time in my jar).

Found a very large rough subpherical gall on a red oak; 2 1/2 - 3 inches in diameter. Cells old & exposed mostly: dug one which cynipid pupa in the full out of it. Gall of punctate, *Rapet. H.*? [Found anomalous cynipid pupa in it] [Turned the "K.R. culcated" strobiloid galls along with the others in the big jar]

"The impression that the living species, connected by such a close link of relationship to some *Anter* diptera, are not new additions to the number of old species, but are so to say, the transformed old species, is in my opinion irresistible to any unprejudiced observer" *Loew 1861 on Anter Diptera Silliman's Journal XXXVII. p. 315*

"Analogous species (plastic or structural & colorational) distinctive characters"

"There is not a single instance on record which will justify the conclusion that under the now prevailing natural conditions, any species could be modified in that way, either through climatic influences, or in consequence of a compulsory change of food or through the contact with some other species" *ibid. p. 324*

many of them 2 or 3 *g. cineris* galls. Found no cocoon. larvae & pupae, but on 5 of them 5 Chalcid. pupae. Cocoon of cynipid in one gall apparently from old site



25) ~~also~~ May 6. More than a dozen of the <sup>batatas</sup> ~~S. podagracea~~  
cactenones (as previously) from <sup>batatas</sup> ~~S. podagracea~~  
yellow, bored & placed in separate jar. They  
had already produced the ~~other~~ pod. parasites.  
Antennal exp. of ~~S. podagracea~~ <sup>batatas?</sup>  
orthaloride

[illegible]

In about a dozen ~~specimens~~ specimens the markings, and in  
light variegations, one or two closely brown above  
between the sutures. The rest more or less brown  
(by brown lines) between the sutures. Body pale  
yellow - in all. Very color seems due to eggs (sides)

May 7. C. bicolor ♀. Setae rather deep blood-red. The  
dorsal ~~setae~~<sup>dorsal bristles</sup> shorter than lateral & laterally longer hairs.  
Transverse striae rather indistinct; behind

Then viewed from behind color is dark blood red (26)  
End of <sup>tail</sup> ~~caudal~~ caudal (from above <sup>balls</sup> ~~above~~) ant.  $\frac{2}{3}$   
of abdomen brassy yellow - with a transverse line  
of dusky with is an acute stripe; post.  $\frac{1}{3}$  blood red  
(conspicuous), & usually, without any stripe or v-b  
Therefore <sup>polychaete</sup> appearance caused by intrusion of legs  
like 2 & 3 had before <sup>P. 80</sup> = polychaete - Yes, no doubt

Head & proboscis ~~all~~ dull yellowish brown.  
 white pubescence. Dorsum brown; transverse striae  
 cells distinct; space behind them dull yellowish  
 brown, more especially when viewed from below.  
 Head & proboscis & abd. yellowish fulvous, with a dorsal  
 line of black. Dorsum a subfascious brown irregular with  
 blackish spots. (about 14-15. = 3.5. head before sp. 25)

22 Plantago has abd. length conspicuous as head  
but shows a dorsal long stria.

*Meg. c. fusc. Clauoptera solidissima* from Laurel color  
yellow

C. 2 egg chick. That was certainly the same egg. Robin  
old. very exactly smaller than usual. Had the border  
entirely brown-black, even when viewed from below.  
Venter, when viewed of whitish pubescence, <sup>very faint</sup> but the

Bird from the low lot of batalar [?] the same location  
 north of the house as yesterday from the others. Pins of  
 3 characters all identical to the bird from the house.  
 Hence increased bird of batalar [?]?







9-78 Graphaloides cocoon is no larger than pupa. Head  $\frac{2}{3} - \frac{3}{4}$  as long as the galls. Dry out of one 6 specimens of the Chalcedon bred from 10 many of them galls, 5 pupae out. 7 black out. Thorax ☐ no setae. Spined 20-30 galls. Pupa all apparently dead. Anterior feet black, posterior dark sanguineous.

Mar 14. The Callomene has cleared so many out  
of <sup>batala</sup> [ ] gully for many days & the spotted  
Arctostaphylos is coming out. The Callomene has  
come out at least a week before & is appearing.

Found loose anozys, Strickland's galls on  
the yellow hairy chalcids? larva - Plac. in m.

A spotted long locusts? from small butaka  
 - 5 to 10 insects. Abd. not conspicuous but very  
yellow or pale faint, banded line below the abdomen  
indistinctly with brown, one much more than the others  
at 2000 (about). Back of the feet uniformly dark  
as usual white or gray lines on abdomen

C. arbutus = (from small & podopne galls) has white (100  
conspicuously white in a huc behind each the eye.  
7. dorsal abd. p<sup>ts</sup> slightly brown medially above. 8<sup>th</sup> on  
last seg., corp. yellowish. Epistoma(?) with conge-  
lous white hairs. Pubescence complete.

May 20. Small [ batalas ] calls produced sound 25  
 1000000, same as large [ batalas ] which also 25  
 produced a few 25, but no more of other variations.

Wood 5 specimens (apud) ...  
branches. This species ...  
(apud) ...

[illegible]

*[Handwritten notes on lined paper, partially obscured by a yellow sticky note labeled "98". The visible text includes:]*

V. S. ...  
... 14-5 ...  
but 2-4-5 ...  
... 13- ...  
... 2-4-5 ...  
... 2-4-5 ...

May 22. 4 or 5 caterpillars from small *batalas*  
 noticed in plant grey & from *Strobilodes* gall, a  
 mass of <sup>8 or 10</sup> *Strobilodes* near the small or upper end  
 than *Strobilodes* to pupa? = *exochus*

May 24. 1892 Trifolium leaves out - three

May 26. 2 little cases at  
under Shrublands. Scaled insect on leaf.  
Prove to be 1993 *Chor. orchelimum*. Four 1st inst.



---

148

30

12

08

---

198



2-48/2. graphaloides cocoon is no longer than pupa. About  $\frac{2}{3} - \frac{3}{4}$  as long as the gall. Dry out of one 6 specimens of the Chalchide bred from so many of these galls. 3 infans ant. 2 black ant. thorax ☐ no cutures. opened 20-30 galls. Pupa all apparently dead. Anterior part black, posterior dark sanguineous.

May 14. The Callisnoe has cleared coming out  
of <sup>batala</sup> [ ] yells for many days - the spotted wing  
Huttons? still coming out. The 2 Callisnoe had  
come out at least a week before & appeared.

*Fernand Forest* many stridoid notes, as if  
the yellow hairy whistled? horse - (Horse) - note.

35 fulviventris. - Obligate red sanguineous but legs  
yellow or pale fulvous, Banded above between the notae  
indistinctly with brown, one much more than the others  
Sub. 2 + 1/2 (about) Back of the head uniformly dusky  
no subalbar white or gray line as in fulviventris

C. abotales ? (from small & podopne galls) her. abot (100)  
conspicuously white on a huc behind rest the eye.  
? dorsal abd. ps slightly brown medially above the  
back long, ovip. yellowish. Speciosa? with comp  
-lous white hairs. Reproduction complete.

May 20, Small <sup>batalas</sup> [ ] (batalas) produced several ♂♂  
Cathartes, some as large as [ ] (batalas) which also took  
produced a few ♂♂, but no more spotted Verreaux's.

Prod 5-6 mm. Capsule in inverted bay from with  
 branches. This species was "identified" by DeLong  
 (Cape May's books) (2-3-4 small, 5-7 & small, small  
 1.8 2 in. = 1.8 2 in. small)

Mar 21. Fred. 2.3. 8. 10. 12. 14. 16. 18. 20. 22. 24. 26. 28. 30. 32. 34. 36. 38. 40. 42. 44. 46. 48. 50. 52. 54. 56. 58. 60. 62. 64. 66. 68. 70. 72. 74. 76. 78. 80. 82. 84. 86. 88. 90. 92. 94. 96. 98. 100. 102. 104. 106. 108. 110. 112. 114. 116. 118. 120. 122. 124. 126. 128. 130. 132. 134. 136. 138. 140. 142. 144. 146. 148. 150. 152. 154. 156. 158. 160. 162. 164. 166. 168. 170. 172. 174. 176. 178. 180. 182. 184. 186. 188. 190. 192. 194. 196. 198. 200. 202. 204. 206. 208. 210. 212. 214. 216. 218. 220. 222. 224. 226. 228. 230. 232. 234. 236. 238. 240. 242. 244. 246. 248. 250. 252. 254. 256. 258. 260. 262. 264. 266. 268. 270. 272. 274. 276. 278. 280. 282. 284. 286. 288. 290. 292. 294. 296. 298. 300. 302. 304. 306. 308. 310. 312. 314. 316. 318. 320. 322. 324. 326. 328. 330. 332. 334. 336. 338. 340. 342. 344. 346. 348. 350. 352. 354. 356. 358. 360. 362. 364. 366. 368. 370. 372. 374. 376. 378. 380. 382. 384. 386. 388. 390. 392. 394. 396. 398. 400. 402. 404. 406. 408. 410. 412. 414. 416. 418. 420. 422. 424. 426. 428. 430. 432. 434. 436. 438. 440. 442. 444. 446. 448. 450. 452. 454. 456. 458. 460. 462. 464. 466. 468. 470. 472. 474. 476. 478. 480. 482. 484. 486. 488. 490. 492. 494. 496. 498. 500. 502. 504. 506. 508. 510. 512. 514. 516. 518. 520. 522. 524. 526. 528. 530. 532. 534. 536. 538. 540. 542. 544. 546. 548. 550. 552. 554. 556. 558. 560. 562. 564. 566. 568. 570. 572. 574. 576. 578. 580. 582. 584. 586. 588. 590. 592. 594. 596. 598. 600. 602. 604. 606. 608. 610. 612. 614. 616. 618. 620. 622. 624. 626. 628. 630. 632. 634. 636. 638. 640. 642. 644. 646. 648. 650. 652. 654. 656. 658. 660. 662. 664. 666. 668. 670. 672. 674. 676. 678. 680. 682. 684. 686. 688. 690. 692. 694. 696. 698. 700. 702. 704. 706. 708. 710. 712. 714. 716. 718. 720. 722. 724. 726. 728. 730. 732. 734. 736. 738. 740. 742. 744. 746. 748. 750. 752. 754. 756. 758. 760. 762. 764. 766. 768. 770. 772. 774. 776. 778. 780. 782. 784. 786. 788. 790. 792. 794. 796. 798. 800. 802. 804. 806. 808. 810. 812. 814. 816. 818. 820. 822. 824. 826. 828. 830. 832. 834. 836. 838. 840. 842. 844. 846. 848. 850. 852. 854. 856. 858. 860. 862. 864. 866. 868. 870. 872. 874. 876. 878. 880. 882. 884. 886. 888. 890. 892. 894. 896. 898. 900. 902. 904. 906. 908. 910. 912. 914. 916. 918. 920. 922. 924. 926. 928. 930. 932. 934. 936. 938. 940. 942. 944. 946. 948. 950. 952. 954. 956. 958. 960. 962. 964. 966. 968. 970. 972. 974. 976. 978. 980. 982. 984. 986. 988. 990. 992. 994. 996. 998. 1000. 1002. 1004. 1006. 1008. 1010. 1012. 1014. 1016. 1018. 1020. 1022. 1024. 1026. 1028. 1030. 1032. 1034. 1036. 1038. 1040. 1042. 1044. 1046. 1048. 1050. 1052. 1054. 1056. 1058. 1060. 1062. 1064. 1066. 1068. 1070. 1072. 1074. 1076. 1078. 1080. 1082. 1084. 1086. 1088. 1090. 1092. 1094. 1096. 1098. 1100. 1102. 1104. 1106. 1108. 1110. 1112. 1114. 1116. 1118. 1120. 1122. 1124. 1126. 1128. 1130. 1132. 1134. 1136. 1138. 1140. 1142. 1144. 1146. 1148. 1150. 1152. 1154. 1156. 1158. 1160. 1162. 1164. 1166. 1168. 1170. 1172. 1174. 1176. 1178. 1180. 1182. 1184. 1186. 1188. 1190. 1192. 1194. 1196. 1198. 1200. 1202. 1204. 1206. 1208. 1210. 1212. 1214. 1216. 1218. 1220. 1222. 1224. 1226. 1228. 1230. 1232. 1234. 1236. 1238. 1240. 1242. 1244. 1246. 1248. 1250. 1252. 1254. 1256. 1258. 1260. 1262. 1264. 1266. 1268. 1270. 1272. 1274. 1276. 1278. 1280. 1282. 1284. 1286. 1288. 1290. 1292. 1294. 1296. 1298. 1300. 1302. 1304. 1306. 1308. 1310. 1312. 1314. 1316. 1318. 1320. 1322. 1324. 1326. 1328. 1330. 1332. 1334. 1336. 1338. 1340. 1342. 1344. 1346. 1348. 1350. 1352. 1354. 1356. 1358. 1360. 1362. 1364. 1366. 1368. 1370. 1372. 1374. 1376. 1378. 1380. 1382. 1384. 1386. 1388. 1390. 1392. 1394. 1396. 1398. 1400. 1402. 1404. 1406. 1408. 1410. 1412. 1414. 1416. 1418. 1420. 1422. 1424. 1426. 1428. 1430. 1432. 1434. 1436. 1438. 1440. 1442. 1444. 1446. 1448. 1450. 1452. 1454. 1456. 1458. 1460. 1462. 1464. 1466. 1468. 1470. 1472. 1474. 1476. 1478. 1480. 1482. 1484. 1486. 1488. 1490. 1492. 1494. 1496. 1498. 1500. 1502. 1504. 1506. 1508. 1510. 1512. 1514. 1516. 1518. 1520. 1522. 1524. 1526. 1528. 1530. 1532. 1534. 1536. 1538. 1540. 1542. 1544. 1546. 1548

V. & sacrostrach - kernel v. smooth, brown, slightly pro. wavy  
but 2-4-8<sup>th</sup> fls a little lower than 1-3. Infl. uniform, basal  
of 3 black = 3 seeds each.

May 22 - 4 or 5 cells from south side Catalpa  
 Wood is almost grey & fine striated, a  
 few as <sup>small</sup> ~~large~~ <sup>forms</sup> near the small or upper  
 than material to pupa? = exochord

May 24. 1892 triplicate of Case out - three among

May 26. 2 ditto came out.  
1 under shotholes. Scales (inspected) in bottle  
from the egg case on shotholes. Four hatched out.



10<sup>1</sup> Several subsequently came out. See on the shell of egg thus ~~green~~ Green in the egg & when they first come out: shortly become much marked with black.

Aug 4. He did sleep. He was quite slowly I saw him today.

June 10. Noticed in the opening behind the carter (100)  
on taking the No 66 out of water, filmy branches  
protruding strongly. [Also a pair of <sup>Hydras</sup> ~~Hydras~~  
behind attached to rotum = surface or base of branch.  
None but not seen on a second inspection.]

June 11 - *Macrus sacrospira* (2 cons. ab.) Ind. 1  
Ways vertically lined & <sup>irregular</sup> ~~disseminated~~



put on in alcohol. For placed above in jar  
found many *Utricularia* leaf galls *S. pomum* on  
*S. cordata* yellow. Contained a white larva.  
larva  $\frac{1}{15}$  or  $\frac{1}{20}$  inch long.

June 12. The first c.g. pseudotrachea opened  
contained a large white larva, apparently  
alive, & lignified (?).

The peculiar coloration, of legs from *Saturnia* (?)  
larva *Ephemeropus* not *Odonatour*.



100 In the honey tobacco larva, on the chocolate  
carapace, looking under it there were found  
the small 1st. abd. segments, small as  
maggots. Are they accidental? The hatching  
after the water had dried out, adhered to  
the carapace & left a clean view. There  
are laterally dorsal abd. of a honey tobacco  
larva.

Today opened about 8 g. spongyfica galls,  
which were on the average not full grown  
yet. One contained a mass of 12 or 16 chel-  
cidid larvae  $\rightarrow$  3; 1 a half grown cynipid  
larva; the rest nearly or quite full grown  
ditto. Strung 21 galls on the S.W.  
side of a large black oak (nearly 2 ft.  
thru at butt) SW from the slaughter  
house.

Found *Anthrenus prunivora* on a plum  
on a wild plum tree, almost all the fruit  
of which had 1-5 round perforations,  
& a few were gnawed out or excised!  
A string of gum exuded from almost all  
the round holes. No incisions.

A large <sup>new</sup> gray caterpillar about  $2\frac{1}{4}$  ~~in~~ <sup>inch</sup> <sup>long</sup>  
long, anal prolegs very long & slender, two segments  
behind thorax much elongated with wheel of  
loops as it progresses, though it is 16-footed.  
Under 3 or 4 of the middle segments a large  
squamish black patch. Food-plant —  
Spun up between leaves June 13. In glass-bon-  
net-cage. July 7 came out a caterpillar.

June 13. Tobacco above & came out from bon-  
net obtained 8 days ago.

June 15. The three candle sets tobacco are very  
distinctly feathered on both sides. The  
smallest specimen had crawled at 1/2 of water  
yesterday. It was noticeably still so  
on the lateral thorns of carapace the long  
candle? Yes.

June 15. The "smallest spec" June 15 was apparently  
dead, having remained in the same place 9 days.  
But in the evening a 5 <sup>small</sup> came out,  
& a g. split open on back & partly came out.  
& died. It was found floating in the water,  
not on the cork; put in alcohol. Also remaining  
specimen put in alcohol, which was con-  
stantly moving & apparently just going  
to come to subimagos. Thus they lived on  
5 days in clear water, & 1st spec. 6 or 7 days.



June 17. In Duffon, mass 2 is below middle sup.  
 process & above two inferior processes. I  
 Had one dead specimen in my hand. Found 3 yellow-sculpted. [Dry a dead sculpted out  
 of one afterward]

Found *Myndus* in the north of Harp. 6.  
 cactus in looking like on Duffon's form.

Found 3 spongy-felted at a larva. None  
 found yet. Placed 21 more on the same tree  
 & as on the large black oak beyond foot of  
 road overlooking Joe Davis East Ferry, on the  
 overhanging bank.

*S. cuneata*  
 [found a larva of *Thripid* - Internal larva  
 largely visible with Duffon, but of a  
 where they were discarded. *Thripid*]

Found a spherical gall, intensely like  
*Pseudotrachea* on Black oak. Entirely  
 indistinguishable from small g. *Spongifer*

June 23. Gathered 15 spongy-felted galls below  
 Saw mill. None yet found by *Spongifer*. These per-  
 haps for *gall* in 3 galls, 1 in each.

June 24. Scarce a g. *in* galls to be met  
 with. Where they were abundant last year.  
 These found all below contained branches of *chiloderm*.

June 28. The [ *S. cuneata* ] full of antho-  
 coris pseudotrachea. Yellow larva on  
 paper which is orange color, immaculate  
 & glabrous, grows to 1/2 inch in diameter, often  
 with old galls still on tree.

July 3. 150 *gall* *nubiferans* came out. 10 spongy-  
 felted came out yet out of about 10 galls.

July 5. [The] *Helianthus* was a long list between  
 the inferior appendages. (Ent. Soc. Spec. with by  
 as much protruding)

July 10. Gall *S. rhodoides* slightly conical, very  
 except at top round-ovate, green outside  
 changing to pale yellowish green slightly tinged  
 with gray in the middle. Larva in the  
 middle. *lanceolata*.

The plant on which I found Pap. *Thrips* last  
 year is not *passiflora* but *Pilea trifoliata*  
 (Rubi. family) shrubby tree or large tree.

July 11. Found *Lathyrus* & *gall* *S. cuneata*  
 on *Castanea*.

July 17. The larva of *S. trapez* galls on  
 small lanceolate, centrally lanceolate.  
 found in *gall* on *Castanea* & *gall* *gall* also  
 but not with *gall* *gall*.)



① "Salix rostrata, a northern sp. occurring  
in Massachusetts frequently bears cones."  
M. D. Webb  
July 24. Found pupation of *Carpocapsa pomonella*  
half protruding from an apple in the breeding jar.  
S. pomum  
S. pomum larvae in galls of Salix  
branches now 15 feet by 1 inch.

*batatas*  
[ ]

*Drosophila* ♂♂ of *Micranota vularis*, (some long, some short antennae. O. S. Zinnov. p. 250)

The fact of *Dytiscidae* dropping down upon glass frames mistaking them for water as Westw. well suggests, is proof that they have perception of color.



an inquiline. Found in one gall along with  
an *Anthonomus* pupa a singular black polished  
pupa, hard & horny; abd bordered like scutellum  
in *Perilampus*. Found 3 others by themselves  
in other galls. Placed in vial. Galls often very  
like an apple.

Leaf galls <sup>desmodioides</sup> on *S. humilis* different shape.  
July 30. Noticed young coccus hatched out from  
the body of the hickory coccus gathered 5 or 6 days  
ago, & crawling about on its surface. Also long  
slender larva (—) protruding & showing their  
bodies about like a *Syrphus* larva, the tail re-  
maining in the body of the coccus.

A large green Tortoise larva & a long  
found found in a *Shobol* gall. No doubt  
not its regular habitat? Placed in jar.

<sup>balabes</sup> [larva] larvae above, with  
slender close shaped head. Some are  
white, others yellow. The latter of Call  
at center of gall, of which it is a part. Surface  
reticulate, pale white & fleshy. No color  
apparent & surface of call smooth & rather  
rough & scaly. May be made green & yellow  
several white lines (callous) in the center,  
not hairy but dried & brown.  
Tissue of gall not discovered in yellow.

gnaphalioides

of *S. rhod.* gall greenish white, 1st of July  
yellow blackish with slender pale dorsal line. No  
head blackish glossy; 6 legs dusky.  
— larva (and) of *S. rhod.* hyaline with sparse and  
white markings & a longitudinal central yellow stripe  
in center of body. .07 inch long. Head long & dusky  
— "candy white" slender & not a chalcid.  
The larva of *S. bracon*. and *Chenon* is not  
described yet by me & neither is that of *Chenon*  
larva gall.

July 30. Found today numerous 20-footed *Scutell-*  
*dinus* larva (*Nematus*?) on leaf-galls of *S. cordata*.  
[*Anthonomus* *scutellatus* must be an inquiline.]  
Tarsus blackish & distinct. Length about .02 inch.

Found in Chippewa woods a bush partly *S. longifolia*  
& partly *S. cordata*. The former had *Crataegus*  
galls, the latter many *Shoboloides* galls, & vice  
versa. These two willows readily distinguishable by foliage.

For *inquilinus* & *Cecidomyia* see O.S. apud Solan  
pp. 180 & 184 & 186. Found today ♂ & ♀ *Cec. fulviventris*  
from new *Shoboloides* galls. i.e. species is double-brooded.


"*Merodocia fuzz*" = *salicis enigma*  
— *Merodocia* larva slender about .02 inch long  
& whitish with many sparse yellow markings  
— larva in bud.



1. *Asperula* (Vogel's, 12, 0, 2) *Asperula* (Vogel's, 12, 0, 2)

Wash. I. A 342



Found another <sup>usulique</sup> *S. tegula* gall on *S. cordata*, but the  
beak of the gall recurved.  Like the tongue case  
of *Sphinx 5-maculata*. Larva 1/2 inch long, bright  
opaque orange, with a ventral dorsal polished  
semi-translucent broad orange vitta.

On the insects, Coleopterous, Lepidopterous  
Dipterous, inhabiting the galls of certain  
species of Willow; by B. D. Walk in A."

*Chloris pennsylvanicus* without feet. "Chloris" H. 114  
S. 114 p. 13

*Chloris pennsylvanicus* differs from allied species  
(*tricolor* etc) by the rough & distinctly punctured interstices  
of elytra, while the striae are only faintly punctured.  
Aug 8. 9. Found at Coal Valley, young <sup>see Anal. p. 27</sup>  
Cottonwoods with just such pseudogalls  
as those of *Saperda inornata* say, containing legs  
larva 1/2 - 3/4 inch long.

Took 3 or 4 *Nesocades* *Brigo* at Coal Valley. I saw  
many more, all smaller than juveniles & apparently  
distinct.

Took 5 sp. of a new *Cordulia* I saw hunting the  
creek <sup>at Coal Valley</sup> either a *Cordulegaster* or *Gomphus* (*Spinosus*?)  
very wild & could not catch it.

*Agynis Bellona* pretty abundant there. Took 3 or 4  
for the first time this year at Rock Island.

Found *Haltica alternata*? 8th & pale varietal, flying  
abundantly in a patch of *Salix humilis*.

Found leaves of a *Salix* (*nigra* from memory)  
covered <sup>all over</sup> with little irregular warts, similar  
to the "curl" on peach leaves as described by  
Harris. (Report Pomological Society p. 11)

Perhaps my *S. angina* of similar origin.  
No larvae in the warts, but noticed a larva  
of *anthracis pseudochinensis* crawling on the  
2 or 3 leaves brought home. This larva &  
imago too occurs both on *S. triflor.* (very  
abundantly) on *S. rhodod.* & *S. str.* more rarely.

*Chloris pennsylvanicus* without feet. "Chloris" H. 114  
S. 114 p. 13



Aug 14 =  
no more  
farms  
are  
a big  
group  
of the  
three  
photo  
and

My. sp. 11 bright orange larva 12, 1st 10y. Case  
out of 3. Strobiloides galls. = The white larva in brown  
Case?



eggs - 2 days orange brown. 12 last day  
of 2. Chironomus yellow = the winter larvae in brown  
crown?



From S. crisma galls recently gathered (5 or 6 days ago) came out about 12 cecidomyious larva. .05 inch long & rather elongate & head more elongate & pointed than usual. Breastbone? so far as distinguishable. May be exiguellus. Distinct very from larva of fulviventris. Found one inside the gall.

Aug. 20 Found on *salix longifolia*, probably  
from a gall *trassacodes*, a sprig with 2 of  
the leaves of it so "curled" as to strongly re-  
semble at 1<sup>st</sup> sight *S. enigma*. Dried them.

They agree to {donation} <sup>of the house</sup> {income tax}

Had school much paper from 8-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043

Noticed a mass of Aphide, on a twig of *Salix cordata* enclosed in a gall-like envelope by ants, apparently formed of cow-dung like fibres, not of earth certainly. Inside were aphide, & numerous ants.

Stated larva on 2nd. June - 1st inst. 2 weeks. Head  
 of eye - brown along 1st. white band, 2<sup>nd</sup> (on =)  
 an interrupted space - brown band on 3rd. edge,  
 3-12, dark interrupted, 11 with a brown  
 terminal band. Head yellowish - legs brown  
 on mandible & feet, a few short white hairs  
 on body. Spins a thread, twiggies much, & walks  
 with easily. - *receptante* Walsh

Ag. 24. Anthony Sandell Cam. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

*fulviventris* <sup>2?</sup>  
*albifasciata*



119/8 Glep-box cage.

One under-ground.

X1 *Centistes quadricornis*

X1 *Sphingiscapa distigma*

1X1 *Sphingiscapa distigma* - a lateral & also oblique subobs. yellowish streaks; 2 rows of lat. purple spots, lower one on spiracle, a lateral purple stripe on head.

(2 young larvae - 1st & 2nd instars)

(2 larvae - 1st & 2nd instars)

1 1/2 - 2 in long, pretty robust. See p. 131

(2 larvae - 1st & 2nd instars) or brownish *disippus* (1 came out)

1 larva of *Sphingiscapa distigma*

1 larva of *Sphingiscapa distigma* - 20-footed. Larva feeding on <sup>High wet willow</sup> *Salix* with a small spot (lateral) on <sup>the</sup> 2nd - 11. About 3/4 inch long. Legs 6 + 0 + 1/2 + 0 + 2. Also some yellowish off white region [No pupa or cocoons from them]

120/8 Lab. (Worcester) cage

[1] *Dryocampa larva* (p. 123) [shifted to 3 [lost]]

+ 7 *Dryocampa larva* p. 125 *Stigma*

+ 1 *Stigma*

2 *Sphingiscapa* [shifted to 11 =]

1 *Stigma* [lost]

Up 2 + 5 Larva *Dryocampa Stigma*

123 Lab. 3 or 4 *Sphingiscapa* larvae [one pupa only]

124 Cabbages - 1st inst.

2nd inst. Larva 1/4 inch long on *Brassica*. [No pupa or cocoons from them]



- 121) Aug 26. On cabbage [Agnes with chameleon of Euclidia  
Walter. II. 4395] <sup>slender</sup>  
1) a pale green larva, 1 1/4 inch long with  
numerous more or less distinct whitish longitudinal lines  
Often a broader lateral one: 12 legs, 2  
anal, 0+0, 2+2 +0 +0 +0 +0 + legs. Taper from  
middle of body to head. Numerous, very  
restless. 8 or 10 specimens. Spun a loose cocoon under  
the leaves of the cabbage.
- 2) A nymphalide, prickles, suspended by tail  
about 1 1/4 long
- 3) An arctian, with longish hairs 1 1/4 long, hairs  
black, yellow a broad fuscous stripe each side  
of dorsum leaving only a narrow central  
yellow line, two transverse lateral red warts  
on each side of each segment before the hind  
which some small black freckles. Head black  
with a narrow white vitta & mouth  
white. 16 footed. about 3 spec. <sup>1 spec. 2 hairs had got coal-black & very dark</sup>  
very robust & eats heart of cabbage
- 4) A Noctuid, broad velvety black dorsal  
stripe, then a narrow yellow vitta, then  
a similar black vitta dotted & spotted with  
3 or 4 series of <sup>longitudinally</sup> confluent yellow dots, then  
a yellow line, then black with yellow  
& white freckles & dots; head black with  
white fork. Variable, when large  
small. 3 or 4 spec. - very robust, when large,  
less so when small.

5) A dull-green 16 footed noctuid. <sup>moderately robust</sup> 1 1/2 inch long.  
head green. A dark <sup>abbreviated</sup> on each side of dorsum of  
each segment & a similar one above spiracle  
or place of spiracle which a <sup>brunish white</sup> very pale brown longitudinal stripe  
whole length of body. Another without the  
dark streaks, or subobsolete. Variety? Some  
quite small, & differing. Maybe P. Protodice.

6. Common white Arctia Virginia.

Aug 26. Salicis verruca gall. On S. humilis. An irregular  
spherical <sup>smooth</sup> greenish-yellow gall, 1/2 projecting from  
each side of leaf, on midrib or on some of principal  
veins. Upper side flattish or with a minute  
point or nodule, lower side branching out  
into a ragged wart-like sacrescence. Sub-  
stance rather woody <sup>with central cell</sup> 1-12 on a leaf. Often  
several confluent, but internal cells separated  
by a thin partition. Larva orange, <sup>0.7 inch long</sup> broad-bone  
sub-round, small, indistinct.

Larva of c.s. ~~gnaphalioides~~ now ob- of inch long, yellowish  
with dominant white gut-like markings - broad-bone.



123/ Day 28. { <sup>bicolor Harris?</sup> *Dryocampa* larva - oak - 1.20 inch long.  
Head greenish yellow. Body pale greenish brown,  
very thickly covered <sup>or fringed over</sup> with whitish granulations. Each  
side an obscurely-defined sanguineous stripe  
above the spiracles, which are black surmounted  
by yellowish, & another beneath them interrupted  
at the sutures. Sm transversely placed  
black dots 1<sup>st</sup> segment behind head; 2<sup>nd</sup> with  
two long slender recurved black horns directed forward.  
2 inch long <sup>(hind)</sup> with a few white granules on  
their lower half. <sup>2 lateral black thorns</sup> 3-5-8-10-12  
short black thorns .03-.05 inch long, two between  
the sanguineous stripes, & 1 beneath each stripe  
all transversely arranged. Anal 1<sup>st</sup> greenish  
yellow. <sup>2<sup>nd</sup> with points</sup> <sup>lateral thorn</sup> <sup>instead of two</sup> <sup>with a black point on</sup>  
pale greenish yellow. <sup>thoracic</sup> <sup>as 6-9 but in</sup> <sup>addition a transverse line</sup> <sup>hair behind</sup>  
pale greenish brown. <sup>and a yellowish anal hair close together & directed</sup> <sup>posteriorly</sup> <sup>black tip</sup>  
as described by Fitch & from Abbott by Harris;  
may be *pellucida* as described by Harris & Fitch.

versely arranged, & another pair rather wider apart  
behind the two dorsal ones. Venter on  
each side also with two transverse dots above the  
legs or prolegs, & where none with 6. Anal  
w. with <sup>four</sup> black shining transversely oval <sup>dorsal</sup> spot &  
small. with a smaller one between the 2 hinder  
dots. From each dot proceeds a long pale fuscous  
hair. Spins a thread, wriggles much, & walks rapidly  
backwards more than forwards. Spins a loose  
cocoon. Sometimes burrows in the wood, leaving the soil

Noticed galls of a very similar structure but rougher & more wart-like on upper surface mostly or almost entirely of *Betula* (black birch) leaves, not much bigger than head of large pin & similarly often confluent. Also similar but still more densely confluent & rougher & more ragged galls on upper surface of *Cephalanthus* leaves. Whole bushes covered with them. Single galls about = head lapping. Similar small pin-head-sized ragged galls mostly on upper surface of leaf of *Salix nigra* <sup>s. *S. sericea* p. 126</sup>. In none of them 3 last could I find larvae. Small. Some of them on willow were burst open at top like *g. pilula*. — It does not follow because these galls are so small, that therefore their *Cecidomyia* is abnormally small. *C. s. rhodoides* & *C. s. gnaphalioides* = size; yet galls very unequal.




125 *Salix ramuli*. On *S. longifolia*. Tree 6 inches thro  
at butt, ( & on some small ones ) opposite Bass Creek.  
A mere swelling of a twig from .10 to 1/4 inch  
in diameter <sup>about an inch long a</sup>  
side a 20 footed <sup>greenish white</sup> pale hatched round  
larva about .15 inch long <sup>mouth black</sup> with dark eyes as usual.

In one gall on a twig 1/4 inch in diameter noticed  
a streak brown outside 1/2 2 1/2 inches long  
by 1/8 wide, perforated with pin-holes in ire-  
gular quincunx ..... Each hole poured a  
little upwards from the inside, & in each was  
a (Cicada?) egg, cylindrical perfectly, rounded  
at each end, <sup>shining</sup> greenish-subhyaline, .13 inch long  
& 6 times as long as wide. The ~~outer~~ <sup>upper</sup> end that lay  
outwards was whitish opaque for <sup>1/3</sup> of the  
length of the egg. Not straight but curved in  
a circular arc of about 25°. Preserved 4, &  
placed 1/2 the twig in a quinine bottle.

Several *S. ramuli* were bored & in one I  
found authon. *Scutellatus* <sup>7/11</sup> spec. <sup>2</sup> preserved.  
The others were empty.

Aug. 29. From *S. prunum* another auth. *Scu-  
tellatus* came out.

*Scutellatus* very broad & of a dark  
subfuscous brown on wings - pale  
a narrow lateral line of the same

126 *Salix serena*. *Salix nigra*. Sub-spherical hollow greenish  
yellow galls, .04 inch — .02 in diameter, 2 or more often confluent.  
mostly on upper side of leaf, with a corresponding circular  
depression on the lower in the middle of which is a flatish  
rounded hemisphere. Often but not always with a pointed  
nipple above. Today many are burst open at top. In  
one cell of a double one found a minute large-headed  
larva with a back  (see p. 124), rhynchophorous. Many  
cells when opened, contained nothing, yet not bored. Have  
noticed a few such galls (2 leaves dried) on *S. longifolia*,  
& I think many on *R. R. S. cordata* leaves.

Aug. 30 <sup>S. viminalis</sup> Lenticled larva in twig-gall of *S. cordata* now  
about .12 inch long. Uses its legs well. Imbedded in  
the slit at base of gall. Pale <sup>yellowish</sup> with pale fuscous head.  
~~Many~~ Galls apparently not yet hatched.

On placing side by side six of these larvae with 6  
from twig-gall of *S. humilis*, the latter are all  
decidedly pale greenish, not yellowish, whence I  
infer them a distinct species. These also use  
their legs. Eyes in all distinct, large, blackish. No  
other difference apparent. Lips of ~~mouth~~ mandibles  
blackish.

Today bred a *Litaneus* (Mycetoph.) from *S. angustifolia*.  
Yesterday an *Aspid.* from *S. strobil.*

A *Dryocampa* larva found today agrees with  
Fitch's description of *sigma*. It has a white annulus  
near the tip of its prothorax & a white fork shaped  
with black from the side of the two top ones  
& the lowest lateral (6 in a row) long hairs  
not recurved. Black spots on 1<sup>st</sup> segment mixed with  
white granules. Penultimate 2. 1 long medial spine  
& several others



Aug 31

I looked in saying the pencils of Antiphola are on the 1st & 2nd seg. instead of 2nd & 3rd as in Tapharitis.

They are on 2nd & 3rd. I have a larva found on oak with the pencils all white.

See p. 130. normal, except hind pencils white & front ones strictly black.

I have noticed specimens of *Tapharitis* on oak without the yellow spot behind the head with the pale area - & similar one on hickory.

Cec. 3-fasciata ♀. (recent) Eyes coal-black. Body pale (internally), a spot <sup>above</sup> the origin of each wing, tip of scutell, spot external on corae. 2 terminal dorsal spots on abd. segs 1-5 & a lateral medial spot on abd. segs 1-6 pale fuscous. Femora pale fuscous above & below with a white basal annulus, tib. white with a pale fuscous annulus at base & tip. 1st tarsal seg. base & tip of 2nd & 3rd pale fuscous, the rest white. Wings with an <sup>irregular</sup> pale f. fascia enclosing a large hyaline spot on <sup>anterior</sup> edge, another a little over  $\frac{2}{3}$  of way to tip enclosing a hyaline spot on costa, another on the disk & another on the interior edge, & another narrower terminal one subinterrupted in the middle.

Cec. pallida (♀?) recent. All yellowish, but eyes coal black. Lips of tarsi & sometimes <sup>nearby</sup> whole of ant. tarsi tinged with fuscous.

2 ♀ came out Sep. 1: cut one gall, & central cell stuffed full of castings, leading to the external hole. No other cell to be found.

Found in a bored gall the hole to the central nucleus, which was full of brown powder, only. Perhaps, if aqueous, much like pencil & black, plain, as I believe *Asotus globularis* p. c. excreta, from a new pupa but ~~one~~ cell in that gall.

I placed one full grown & 2 half grown larvae of *Habrobracon* *decoloratus* on oak in No. 3. They did not all when captured, have two pairs of orange pencils in No. 3. Some none? & another (captured) either lost or placed in No. 4. Sep. 1 - protella (1) came out & 1 pupa & another Aug. 31.

Placed in Cage No. 4 (sycamore leaves) 4 larvae of *Antiphola*, viz. 1 which <sup>dead</sup> nearly full grown from oak, 1 yellowish brown nearly full grown from elm (or possibly from oak) & 2 which half grown from oak. Not in very good order, being muffled up & wet.

(The whitish *Antiphola* larva in No. 1, See p. 127) Next morning two large larvae ~~also~~ alive & healthy out of leaves. One & perhaps both small ones dead, where first placed.



[Sep. 2 ?]

Try to get some more from 2. (leafy)

Look to Dryocampa stigma, 1 Dryoc. bicolor.  
Latter placed in Case No. 3

In stigma white granules are mostly arranged in a transverse row on each segment. In bicolor is not so.

The crookedness of the horns is distinctive: some stigma have them similarly bowed. But in both my bicolor the body is very much more covered with white granules, so as to appear hoary, & the prickles are not forked as in stigma. The arrangement & number of prickles same in both sp. In senatoria the <sup>scutellum</sup> ~~subscutellum~~ row of thorns on anal segment ~~is not 2~~ & the terminal row ~~is not 2~~. The anterior edge of upper surface is thorned laterally with unequal <sup>2, 3, 4, 5 long</sup> thorns.

Placed in case 4, 3 Antiphola larva, 2 dirty whitish fuscous,  $\frac{3}{4}$  grown, & 1 ~~half~~ half grown bright yellow, pencils normal. From oak. Another (normal) yellow.

While up & had put some oak yellow (2 specimens) in case. So that mostly marked as before.

Sept. 4 Shifted Case No. 3 (oak-leaves) (p. 128) Larvae scarcely grown, but had all 3 become a dirty white like Antiphola: heads still rufous & pencils (what remained of them) orange. The large one vigorous, the two small ones very dull. The two Dryoc. bicolor all right, the 1st one scarcely grown; but I had carelessly put in this case the D. stigma with left horn broken. Shifted him to No. 1.

Shifted Case No. 4 (sycamore) From this case (leaky) other larvae, notodontide? had been daily escaping. Right to have contained 5 or 6 Antiphola larva. Found only

1st dirty white, half grown, seedy with one black pencil only in front & one behind. Head black.

2nd dirty white, half grown. Had just moulted skin by it. Perfect pencils, & normal. Brownish along the back.

3rd dirty white, dead, half grown.

Added this day the Antiphola larva from No. 1 = p. 127. Today it was gamboge-yellowish, pencils normal, except that 2 front black pencils & 2 hind ones, were only tinged with dusky, instead of black. The other two black as usual. [i.e. 3 Antiphola now.]

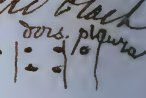
Mended the leaks in cage. Next morning this larva, that I had shifted on a piece of oak-leaf  $1\frac{1}{2}$  inch square, had remained on it & eaten it pretty well up. Took it away from him.

The other two larvae had strayed off the sycamore.

Sept 5. Put 3  $\frac{3}{4}$  grown Antiphola larva off oak in Case No. 4 (sycamore). Dirty white, creel along back a little brownish. Heads all black. Pencils black. Two in first-rate order & one lost some pencils & some hair. All lively.



Placed in Cage No. 5 (bass-leaves) 3 antiphola larvae off oak,  $\frac{1}{2}$  grown, all very lively. Two tolerably perfect, 1 considerably rubbed. The 2 first white, or nearly so, with black pencils & red rufous head, the last dusky whitish or gray, black pencil, & blackish head.

Found in *c.g. spongifica* falls 4 larvae <sup>2-3 inch long</sup> (lepidopt.) legs normal. Color opaque fuscous, head rufous fuscous segments with four anterior transversely arranged black dot (bearing a hair?) & two posterior ones (ditto?) 

Sep. 6. In Cage No. 5 (bass) the rubbed Antiphola was off the leaves. Other two not visible.

In Cage No. 4 (sycamore) 3 good & perfect Antiphola were visible (last night's 3?) one off the leaves (two on). No gnawings when the 2 on the leaves were sitting.

In Cage No. 3 (oak) 1 *antiphola* <sup>strepitosa</sup> was dead & shrivelled up. Other 2 not visible.

In Cage No. 2 (willow) a larva (that like *Acronycta obliqua*?) had spun a cocoon on the roof of the cage, cutting away a large piece of the millinet to make it. Mended with paper.

Placed in Cage No. 1 (oak) 4 Antiphola larvae, off bass. 1 very small (<sup>lively but</sup>) ~~dead~~;  $2\frac{1}{2}$  grown &  $1\frac{3}{4}$  grown all in good order. All black heads, including the small one.

Placed in No. 5 (bass) 3 more Antiphola larvae 1 nearly  $\frac{3}{4}$  grown &  $1\frac{1}{2}$  grown, both in good order, &  $1\frac{1}{2}$  grown lively but nearly naked. All black heads. N.B. Noticed many young Antiphola,  $\frac{1}{2}$  grown & under, with rufous heads.

Sep 9. In *S. pomum* jar noticed 3 nematus larvae .35-.40 inch long, pale <sup>with pale dusky markings</sup> cinereous, with legs active, crawling about. Eyes dusky as usual.

(A) Spun up in Cage No. 1 (oak) a large 2 inch long hairy Arctian?, white, with spreading long sparse white hairs, <sup>proceeding from joints</sup> head whitish with a transverse black <sup>fusca</sup> above. <sup>below</sup> Don't memory. Also a 2nd spec. <sup>2nd spec.</sup> Hair of body 2x as long as body. [Another sp. got today] <sup>May 23 seen empty in pot on oak</sup>  
Found *Aglyptus* 10-lucida today on bayonet.

One larva (the first obtained) of *Dryocampa bicolor*? dead; placed in alcohol in decagonal vial. In *shigma* larva the white granules on each segment are much more sparse & there is always one transverse row of them ~~of~~ on each segment. In *bicolor* they are irregularly arranged, with no vestiges of any transverse row.

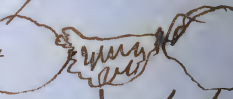
Sep 11. Found *Aglyptus* bella W. in company with numerous larvae on black oak.



2<sup>nd</sup> segm. 1 black pencil 2 white on sides  
 3<sup>rd</sup> segm. 1 black pencil 2 white on sides  
 4<sup>th</sup> segm. 1 black pencil 2 white on sides  
 5<sup>th</sup> segm. 1 black pencil 2 white on sides  
 6<sup>th</sup> segm. 1 black pencil 2 white on sides  
 7<sup>th</sup> segm. 1 black pencil 2 white on sides  
 8<sup>th</sup> segm. 1 black pencil 2 white on sides  
 9<sup>th</sup> segm. 1 black pencil 2 white on sides  
 10<sup>th</sup> segm. 1 black pencil 2 white on sides  
 11<sup>th</sup> segm. 1 black pencil 2 white on sides  
 12<sup>th</sup> segm. 1 black pencil 2 white on sides


When left than 92 grown head is uniform  
 & only pencils on 3<sup>rd</sup> segm. black: on 2<sup>nd</sup> segm. only slightly tinged.

— Sep. 14 Yesterday brought home *C. g. spongyfoca* <sup>don't think</sup>  
 galls from near Slaughter-house, 21 + 21 = 42  
 Only two, so far as visible, bored.

Found under black oaks 85 *g. prunus* galls.  
 None bored. Specimens <sup>6 inch in diameter</sup> found on tree grew one  
 on each side from Cup of acorn.   
 Another grew one only in the same way, but  
 was as yet small & green, <sup>1/4 inch in diameter</sup> showing but little  
 of the reddish markings externally & internally  
 all yellowish green. A dried & bored specimen  
 grew almost from the stem of the acorn.  
 On cutting into it it contained a large larva.  
 Substance of the gall when dried very hard,  
 but <sup>brought</sup> spongy-looking to the eye. When green it  
 turning bitter & 2. *scripta* Baped on Black oak

Mr. Barbour (from No 3) brought me a *Doryphora* 134  
 10-lineata caught on her door-step.

*Doryphora* *10-lineata*? (Klug & Dybster)  
*Doryphora* *10-lineata* (Klug & Dybster)  
 with *Cec. salicis* Schv. O.S. p. 179  
 (Fagellum of ant. in *Cec. destructor*, according  
 to Mr. Herrick, varies from 14 - 17 <sup>1/2</sup> segments  
 It is also lar. of one species, which <sup>by No 570</sup>  
 has the more than one antennae.]

*Sagoa* ~~st~~ *Trichetia oporularis* <sup>Witch. II. 8. 67.</sup>  
 Larva found on Sycamore, but though placed  
 on sycamore leaves on a piece of oak-leaf  
 about 1 1/2 inch square has eaten good part of  
 the latter. Length 1.10 inch, breadth .60 inch,  
 midsection  with a slight dorsal ridge of  
 hair (measurements include hair.) Body covered  
 with dirty white close-set hair sloping backward,  
 on joints 3-12, upright on 2, & sloping forward on 1.  
 Head <sup>exactly</sup> retractile. Segments plain thro the hair.  
 Hair below line of spiracles (which are <sup>anous</sup> black anous)  
 dirty gray. Abdomen naked & as well as <sup>anous</sup> when round  
 spiracles & legs & prolegs <sup>dark</sup> flesh-colored. Hair  
 about .20 - .25 inch long. Head flesh-color varied with  
 pale dusky. When disturbed, rolls into a ball,  
 like <sup>in</sup> *Arctian*. Hair <sup>in</sup> *Arctian* in bunches, appa-  
 rently arising from <sup>large</sup> shallow warts, soft & more  
 like hair of a mammal than that of other *Arctian*.  
 — *Apathus* & works on flowers steadily. <sup>major</sup> *Pompilus* & flies  
 about idly on leaves, (trusting to its nest?) *Ph. B.*  
<sup>vapor</sup> & *P. vespugineus* & works.



135 *Cordulia* larva of *g. pinnata* has a slender  
close-fitted breast-plate.

Agout 2<sup>nd</sup> oak. *Phaen. thorax* a large *Satanian*  
= *Partherope auct. Grote*  
black, black tufts, head black, cheeks  
segmented, sanguineous. Found on black  
Hawk Rocks. [Sep. 27 found him feeding on oak]  
a cup 10-12 hollow a few green *Euthra*  
larva (white) speckled with dark dots.

Sep. 26. Caught the (brown) *Xiphidium lineatum* Walk  
ms. ovipositing in the tip of a broken-off stem of  
Golden-rod, stem growing, but dead & dry where  
egg was laid. Egg 5 times as long as wide, perianth  
& about 16 or 17 long.

Oct. 2. Found on a willow (*cordatum*?) 3 full-grown  
*Ambra ulmicola*? One of the varieties? *Phytophagus*?

Found in an old nest of *Hypochaeris* tentor. 28 29 of  
a ~~*Rhaphigaster*~~ <sup>*Phytophagus*</sup> 5 or 6 of a short-winged subapterous  
*Pentatoma*? with 4-jointed ant., 1 short 2 long, 3 < 2, 4 < 3.  
Pupa? Do they feed on the larva, like *Stethorus fimbriatus*  
found in another caterpillar nest in the same (August)?

Can the subapterous sp. be the pupa of the *Phytophagus*? [yes]  
It is common in the summer, but is very unlike the image.  
Lots of the *Scutelleride* larvae in the nest.

The legs of the larva of *Emura* ~~*Emura*~~ <sup>*So. ovipos.*</sup> *Walk* are not impotent  
they distinctly the pupa of the above (many, which granules  
*Scutelleride* with its beak porrect laterally.  
& plumped into the abd. of a lepid. larva 1/4 inch long  
feeding on Mulberry. Had placed 2 among them. Close

by was a dead lep. larva, which he had apparently  
already sucked. Three hours afterwards saw him again  
with his beak inserted into another & probably the  
same lepid. larva.

Colony of bees in *Neotoma* (*Grote* / *ms.*)  
(*Catocala* example)

1<sup>st</sup> basal  
2<sup>nd</sup> transverse anterior

3<sup>rd</sup> transverse posterior (toothed)  
4<sup>th</sup> subterminal  
5<sup>th</sup> terminal (dots often)

Spaces 1<sup>st</sup> basal space (inside basal line)  
2<sup>nd</sup> subbasal between 1<sup>st</sup> & 2<sup>nd</sup> lines  
3<sup>rd</sup> median space — 2<sup>nd</sup> & 3<sup>rd</sup> lines

superiorly above median vein called  
discal space; below it no name  
cardinal or oblique next base, reason  
V sub-veniform

4<sup>th</sup> subterminal space between 4<sup>th</sup> & 5<sup>th</sup> lines  
5<sup>th</sup> terminal — 4<sup>th</sup> & 5<sup>th</sup> lines  
*Phytophagus* *Scutelleride*







Wm. J. F. F. F.  
Jan 24 - 1868

D. Velie's Colorado  
Lepidoptera

1. *Parnassius Smintheus* Diller  
= common = *clarus* = *clodius*
- 2nd *Pieris* var. *casta*
3. *Col. eurytheme*
4. *Nath. Iole*
5. *C. Huntera*
6. *Limnitis Weidemeyerii*
7. *Van. Milberti*
8. *Argynnis columbina*
9. " *xerene*
10. " *aglaia? atlantis?*
11. " *myrina? front wings only*
12. *Melites editha*
13. " *palla*
14. " *mylitta*
15. " *phaon*
16. *Polymnatus acmon?* 58
17. " *n. sp.?*
18. *Chionobas n. sp.*
19. *Canonympha ochracea*
20. *Pamphila n. sp.*
21. *Syrackthus n. sp.*
22. *Omoia vermiculata*
23. *Saturnia eglandorina* Grote
24. 5 undetermined heterocera

Species - not structural  
Coloration, Phytophages  
Habit of wing (25. Not p. 593)  
Three structural, habits,  
Voice & Motion  
Cec. Tarlee (from Ha-  
vis's description) must  
be a *Diplosis* by Dr.  
p. 593

Sent Mus. Comp. Zool.

- 140
- \*621-2. 8♀ large dotted wings *Adipoda* - proth. bifid
  - \*623-4 - scarlet-wings
  - 625 *agialis* ♀ Say. Sta. Scudder, *impropta*.
  - \*626 large proth. trifid (like *Adip. maritima*)
  - \*627 *Ad. trifasciata* Say
  - \*628 - near 3-fasciata, but antenna shorter & slender
  - \*629 *Gr. formosus* Say
  - \*630-1. Black short wings; *Chlocalkis? rubrilas* Say
  - 632-*Ucr. alutaceus*. "Not: *Ucr. alutaceus* & *rubrilas* Say
  - 635 *Cal. flavovittatus* ♀ "Hae spots on elytra. *obscurus?*  
*A. emarginatus* (Hae) Scudder
  - 636-7 - *femor-vulvum*. (?? wings too long. Say & Dr. F. C. M. p. 593)
  - 638-9 Blue & red - very abundant in Kansas & Va. (Hae?)
  - 640-2. Like *Romalea* = *R. Florida* *Romalea* (Hae?)
  - 644-5 *Ephippiger* ♂ & ♀ = abundant west of Mississippi
  - 647-8 - Pupa *Anabrus purpuratus* (Hae?)  
P. & S. P. III. p. 550
  - 649 *Con. ludger* ♀ - Yes.
- "*Brachys* - forms several very distinct groups, which I should consider as genera, but that Lacordaire states that they merge imperceptibly together." Sec. *Phaenocarpa* p. 257  
See also Sec. *n. sp. Col.* p. 8  
"Larva of *Agrotis confinis* lives in the interior of the stalks of *Rubus*" (B. H. H. p. 243)  
\* unknown to Scudder



141) Noticed in Feb. in Union Square many *Lonicera* with *Urophycodes* galls in abundance among *S. alba* in Union Square. No galls on *S. alba*.

*Sap. conchensis* (var) & *S. populnea* (var) both feed on Poplar. So *S. incana* Say on willow & *S. —* on Cotton-wood. *Phylloxera* Hairy? But *S. aphodius* on *Aphodius* larvae & *S. cylindrica* on "nut pear & plum" See *Weeks, Jour. I.* p. 365 *S. calceolaria* Say on *Verbena* Poplar (*Weeks Jour. I.* p. 107) *Malp. S. bruchii* Say

The *Urophycodes* <sup>var. *offensus*</sup> *offensus* was found in the middle of September on the Platte River in Colorado (the plains) near Baker's Ranch. No trees but Cotton-wood growing within many miles. H. Dr. Parry. 11 *Appl. V.* & *S. scutellaria* on *Scutellaria*. *S. thurberiana* on elm & *S. fasciata* (closely allied) on elm (Fitch) *S. discolor* in Feb. on *Hedera* (Fitch) Has, out of 10 *Lepidus* when habits are known, 4 feed on Willow & Poplar, which cannot be chance.

The so-called "*Chilocorus bursarius*" that copulates with *Cocc. abdominalis* is not *Chilocorus* but *Coccinella*, marked similarly. A hybrid?

142) Modern German anatomists have established that the viviparous Aphides have no ovaries & reproduce by budding. They are: no real ♀♀ according to their opinion" O.S. MS.

It was the Dane Steenstrup who first suggested in 1842 that the reproduction of the Aphides was a form of alternate generation. Later Cornu, Say, Siebold & principally Seuchart (in his pamphlet of 1858) have by dissection come to the conclusion, 1<sup>st</sup> that the viviparous aphides are distinct from the viviparous ♀♀ 2<sup>nd</sup> that the development of the embryos in them belongs to the class of phenomena called alternate generation, that the viviparous Aphides therefore are not true ♀♀ but "Parthenos" (semites). Both Seuchart & Siebold expressly state that this form of alternate generation has nothing in common with the parthenogenesis of bees; that the viviparous aphides have no true ovaries & no receptaculum seminis, which others even occur in all ♀ insects & that the ovaries (Eierstock) are replaced in them by Keimstock (But ~~But~~ Keim = bud or embryo" O.S. MS.)



143 *Sphinx 5-maculata* - Transf. very rarely  
delayed to 2<sup>nd</sup> summer? *Sentinel P.E.S.P.*  
III. p. 650 So *Sphinx drupiferarum* ibid  
p. 659

Larva of *Stylus* (Weeb.) said to be really a  
♀ imago by Siebold *P.E.S.P.* III p. 44. (See  
quotation from Weeb. in the Ohio Secretary's  
printed letter) Now there must be winged  
dimorphic ♀♀, otherwise how can the  
race be propagated?


Sep. 22. Split 1 up. *Itanophorus notatus* out of Hickory  
March 12. Examining 40-60 galls of *G. prunus*  
from which had been on my table this? Weeb. found  
4 or 5 *acculata* (dead) that had come  
out, & in about 12-14 galls found in two  
masses of *Chalcididae* larvae (10-15) & one  
or two *Cynipidae* larvae apparently alive.

March 27. Found white hickory (in Case's field close to stubb  
grave-vine & *G. prunus* tree) full of the woody galls which I  
once bred a *Trochilium*. Found in one of them 4 larvae  
1/4 inch long, front 1/2 very robust & apparently from head?  
*Curelionidae*. [Bred a black *Curelionidae* *magdalis*?  
May 22. from these galls.]

March 31. *Teniopteryx fuscescens* Burm. does not  
hibernate in imago but comes out from Mississippi  
River now. Found numberless sp. under rejectamenta  
some mature, some just come or coming out & preceded

one perfect pupa. Found in company about a dozen (144)  
*Caprea pygmaea*? Burm. All ♀♀?

Apr. 3. a *G. prunus* gall opened (on shelf all winter)  
contained healthy & living large *Cynipidae*, *Syrphidae*  
*acculata*.

Apr. 4. A remarkable ♂ *S. seligra* from *S. humilis*. Length  
(recent) .25 inch (ita). Kept it 24 hours alive. dorsum of  
abdomen  deep brown black with very definite edges, the  
sutures (= 1/2 length of other part) & venter fulvous. Venter  
white hairs laterally up to dorsal brown-black. Eight  
distinct abd. segs. Last smaller & narrower & bearing the slight  
Fulvous suture between 1<sup>st</sup> seg. & metathorax. Abdomen evi-  
dently abnormally swelled as often in *Gynophorus*, for thor.  
& head not much larger than in ♂ *S. seligra* from *S. cordata*  
which came out same day & when alive measured only .15 inch.  
All from *S. cordata* hickory (4♂ 5♀) had dorsum abd. brown  
black & venter nearly the same, or slightly saff. How easy,  
if only this one bred, to separate it as a distinct species  
by glaring & obvious characters! Those from *S. cordata*  
had the thor. sub-bivittate with whitish hairs.

Apr. 7. In a recent *S. cornu* gall found [6 or 7] orange  
colored larvae (*Chalcididae*). The normal diaphragm,  
& gall bored with 2 or 3 minute holes. Head & 3  
thoracic segments perfectly hyaline, rest deep orange.  
No breast-bone. Placed in vial <sup>May 14 5 came out Chalcididae</sup>  
<sub>+ 1 pupa + 1 larva</sub>

Mangrove-trees germinating in the City of  
the flower analogous to *surferous* animals.  
West. Sh. p. 179



145 Apr. 11. Larva *C. s. triticoides*.  $\frac{1}{10}$  inch long, full 3 times as long as wide. ~~Fulvous~~ fulvous with whitish bowl-like markings. Breast-bone Y-shaped as in *Brass. Vc.* Entire cell 5 long, .05 wide. Cocoon ~~attached in wood-part of cell, free but part~~. One extracted whole contained larva lying ~~little~~ with its head a little behind central part of cocoon. One living sp. I a dead & partially dried up one, which had become lutes-fulvous instead of fulvous. Head very large, as long as segments are long, so that when retracted ant. end. of body seems truncate. Two *S. gemma* opened contained each a white Chalcid larva (no breastbone) about .1 inch long.

*S. strobiliscus*? for 8 sp. more or less deflexed or reflexed, instead of porrect.

Apr. 9 Placed 2 pupae & 2 larvae of *S. strobiliscus*? (*S. discolor*) in a vial. Apr. 14 one larva had changed to pupa, but legs just as long as other 3, or all 3 alike.

Apr. 14 Imago ♀ from *S. discolor*? *ulixia* N.H. indistinguishable from imago ♀ same day from *S. humilis* gall *ulixia*.

Apr. 16. Bred 3 ♀ 2 ♂ *Nematus s. pomum*. Compared (recent) with recent ♀ *S. desmod.* bred yesterday but killed today, abd. & legs of all (except of course abd. dorsal black parts) is ~~greenish white~~ ~~is also in bred sp. in fulvous or dull fulvous whitish~~. In *S. desmod* ~~these~~ pale dull greenish white. Also also in all bred sp. so far as legs at least.

5 ♀ from *S. discolor* *batatas*-like smooth gall = *C. s. batatas*. Scutell covered in 2 or 3 with forked white hairs in a dense brush. [So in *humilis* *Cec.*?] So in several on Apr. 18 none bred 1865

Apr. 17. *Cec. s. batatas* (7 ♀) bred from *S. discolor* gall have <sup>acuminate, narrow-linear</sup> a whitish eye orbit (like *Cec. orbitalis*) & disk of each ventral brown, when hair is removed, forming square brown plates. *Cec. s. batatas* apparently has white orbits too.


Apr. 18 10 ♀ *C. s. batatas* from *S. discolor* had all the eye orbit as above, but (very killed immediately after coming out, the others having lived 7 or 8 hours) had <sup>ventral all sanguineous, in maculate white body</sup> ~~Found~~ *Phaenocarpa* (cabl.) in copula, one of them with its beak into an *Andrena*  $\frac{1}{2}$  inch long. Thought I noticed subsequently one stick its beak into blossom of *S. humilis*.

Apr. 20 Today & yesterday, 7 or 8 more *C. s. batatas* came out from *S. discolor* galls each day. All ♀.

Apr. 18 Found a stylotized *Andrena* on willow blossom. On April 19 fixed him under a glass with wetted sugar. <sup>may 3. sick. may 4 died. no result.</sup>

Apr. 21 3 ♀ *C. s. batatas* from *S. discolor* galls (no ♂ yet) no any parasites. [No ♂ afterwards, but *deutonympha* parasites.]

~~Apr. 18 Found numerous larvae (apparently of *Nematus* *desmodii*) on *S. humilis*, which had hibernated in cases like pitcher-plant made out of willow-leaf. Taken (P. S. P. II - p. 62) supposed it to hibernate in imago state.~~

Apr. 23 Found one similar case on *S. cordata*, old & empty. Base of leaf always tied to twig with silken cords. Leaf cut thus: 

~~This case was in flower but no larvae, & was in position about the flower in appearance. May 5 the case was found to be empty.~~ N.B. according to Harris *Cynthea Atlanta* normally draws leaves together in the same way. *Hyd. s. s. p. 295*



147 Apr. 30. Came out 1 ♂ 3 ♀ L.S. *Strobilescus*, or *S. discolor*?  
♂ (certain) right ant. (3 last <sup>th</sup> sepal) 23-jointed  
left — (1 last —) 24-jointed.

All ♂♀ with a white annulus of hairs next eye on occiput. Scutellum with a forked brush of wh. hair. White hairs of dors. thor. nearly in two rows 1 ♀ only (x on card) with origin of anterior branch of 3<sup>rd</sup> long. very distinct. Red indistinct ♂♀.

The gall in yellow-brown is an additional criterion of distinctness of species, between larva, pupa & imago, or imago only according to some writers.

May 1. C.S. conspicuously distinguishable from *C. californicus*; kept from overnight to that thorax dark brown; ant. much 3<sup>rd</sup> longitudinal striated? — a few spec. on May (recent & just come out) has dorsum of thor. entirely bare. A linear whitish only.  
May 16. Heard one ♀ pruned gall. Larva there, recently & probably alive.

May 7. *S. Strobilescus* 5 ♀. Antennae & apparently 22-24? 1 narrow scale whitish white.

May 10. Larva of *Nymphalis deiphila*? Willow. Cylindrical, 1.2 inch long, .25 inch diameter. Whitish. Head dull olive, with minute prickles & a pair transversely arranged on vertex of which is <sup>top of</sup> <sup>which is</sup> <sup>top of</sup> prickly cylindrical horns about .03 inch long.

On segment 2 dots black & .16 long. On 13, 10 & 11 a pair of <sup>large dorsal</sup> tubercles transversely arranged, each crowned by a little brush of 8-12 robust prickles. on 15. ditto larger <sup>yellowish</sup> mamma-like. On 4, 6, 7 & 9 ditto, smaller.

than on 3 10 & 11. On 12, 14 black prickly <sup>dorsal</sup> horns, quadrate-regularly arranged about .03 inch long. Dorsum speckled & mottled with olive of different shades above line of spiracles, except 28 & the upper part of 7 & 9, leaving a continuous white line above the spiracles, beneath which <sup>white line on 13</sup> 4-10 in <sup>large</sup> <sup>glue</sup> patch extending to external of prolegs. Legs blackish.

May 9. 2 ♂ *S. gemma*. Larva whitish white. Horns nearly bare with a rudimentary row of 7 grayish white dots as in *Strobilescus* but 24<sup>th</sup> last seg 20-22 last seg. only coated with cottony not developed well.

of black bands <sup>dorsal</sup> dots in the suture behind 1<sup>st</sup> 2 & a less one above 2<sup>nd</sup> & 4<sup>th</sup> proleg. Overmounting the lateral white line. joints 3-7 & 9-11 with more or less shiny, elevated blue dots. Spiracles blackish. Three specimens.

May 14 *S. gemma* all mouldy. Dug out of 4 of them a black (Chalcididae?) pupa about .1 inch long, preserved. In one noticed much large-sized frass. Does the Tenthrinidae come out in the fall?  
[May 26 found in this bottle 1 ♂ 1 ♀ cecid. which must have come out since 14<sup>th</sup>. Preserved.]

*Carya*  
*filula*

Deep blackish  
sp. blackish



*Carya*  
*filula*  

---



147 Apr. 30. Case out 1 ♂ 3 ♀ L.S. *Strobiliscus*, or *S. discolor*?  
♂ (certain) right ant. (3 last <sup>th</sup> sepal) 23-jointed  
left — (1 last —) 24-jointed.

All ♂♀ with a white annulus of hairs next eye on occiput. Scutellum with a forked brush of wh. hair. White hairs of dors. thor. nearly on two vertebrae 1 ♀ ~~not~~ (x on card) with origin of anterior branch of 3<sup>rd</sup> long. very distinct. Red indistinct ♂♀.

The gall in gall-meads is an additional criterion of distinctness of species, besides larva, pupa & imago, or imago only according to some writers.

May 1. *C. s. concolor* easily distinguishable from *C. albidus*; kept from overnight so that thorax nearly bare; ant. much 3<sup>rd</sup> longitudinal striated? — of sp. on May (recent & just come out) has dorsum of thor. entirely bare. A linear whitish on

May 14. Heard one ♀. pruned gall. Larva then <sup>healthy</sup> & probably alive.

May 7. *S. Strobiliscus* 5 ♀. *Strobiliscus* & apparently 22-24 ♂. A narrow oval whitish

May 10. Larva of *Nymphalis deophras*? Withers. Cylindrical, 1.2 inch long, .25 inch diameter. Whitish. Head dull dove, with <sup>dense</sup> minute prickles & a pair transversely arranged on vertex <sup>which is high</sup> of prickly cylindrical horns about .03 inch long.

On segment 2 ditto black & .16 long. On 13, 10 & 11 a pair of <sup>large dorsal</sup> tubercles transversely arranged, each crowned by a little <sup>yellowish</sup> patch of 8-12 robust prickles. on 1<sup>st</sup> 5 ditto larger <sup>yellowish</sup> mamma-like. On 4, 5, 6, 7 & 9 ditto, smaller

than on 3 10 & 11. On 12, 14 black <sup>dorsal</sup> prickly <sup>long</sup> hairs, quadrate-148  
regularly arranged about .03 inch long.  
Dorsum speckled & mottled with olive of different shades above line of spiracles, except 1<sup>st</sup> 2 & 3 & the upper part of 7 & 9, leaving a continuous white line above the spiracles, beneath which <sup>white line</sup> on 1<sup>st</sup> 4-10 in <sup>large</sup> blue patch extending to external tip of prolegs. Legs blackish.

May 9. 2 ♂ *S. gemma*. A slender whitish caterpillar. Thorax nearly bare. The other with a subobsolete dorsal row of grayish white hairs about as in *Strobiliscus* etc. Ant. 21-j. last sepal, or 20-8 last & 10-12. Ant. certainly coiled with certainty; red, not developed well. (a pair

of black transversely arranged <sup>dorsal</sup> dots in the suture behind 1<sup>st</sup> 2 & a less obvious <sup>lateral</sup> one above 2<sup>nd</sup> & 14<sup>th</sup> proleg surmounting the lateral white line. Joints 3<sup>rd</sup> 4<sup>th</sup> 7<sup>th</sup> & 9-11 with more or less shiny, elevated blue dots. Spiracles blackish. Three specimens.

May 14. *S. gemma* all mouldy. Dig out of 4 of them a black (Chalcididae?) pupa about .1 inch long, preserved. In one noticed much large-sized fraps. Does the Feathered mole come out in the fall?  
[May 26 found in this bottle 1 ♂ 1 ♀ cecid. which must have come out since 14<sup>th</sup>. Preserved.]

Legs blackish  
spir. blackish



May 20. *Fraxea* n. sp. ♂ Anus is beneath inferior appendage.

May 21 Found very numerous ~~see~~ galls like *Tubicolas* s. on leaves of wild plum; also terminal vestiges of galls like *S. bifurcoides*.

The oak on flats <sup>East of Slaughterhouse</sup> had 20 spongy galls. That in Case's field was full of them - 50 or 60 at least. Galls now some small, some  $1\frac{1}{2}$  -  $3\frac{1}{4}$  inch in diameter.

No sign yet of any new Black knot.

The Black oak on Flats North of Jones' House had 4 galls only: those south of it all the way along had a few galls (spongy) each. The one most to the south had a new kind of gall, white, woolly <sup>outside</sup>, fleshy inside & polythalamous, 1 -  $1\frac{1}{2}$  inch in diameter, growing round the base of the catkins. = *g. opercularis* = *g. flosculus*

May 26. Two (dead) Cec. (10 & 12) found in *S. grama* real are probably *insularis*, - 1st *eurypoides* therefrom, 2nd pedicels of 2 ant. = globular part of it.

May 26. *Microstigma* larva had *S. strabulans*

May 28. *Microstigma* larva in *S. strabulans* occurred very abundantly at Chippewas on *Silphium perfoliatum*. Very many in cortex. No coloration & in seeds.

May 29. Found *Microstigma* in cortex in my form with orange pedicels for a species. [ = *latens* Say, *Microstigma* ]

May 30. Larva in *Gomphus* below inferior appendages (150) but above two anal appendages.

Took a ♂ *Leptura brachyla* Say in cortex with 2 ♀ var? elytra entirely black & thorax entirely red. Thorax & entirely black. Preserved.

June 2. Saw *Deltophila* *lucida* flying freely

2 P.M. on *Asclepias* flowers

June 4. Captured ♀ *Syrphus* *modioliformis* on a green *g. polagae* gall at large.

Many of these new galls bored, others not. The borings lead to empty brown cells, promiscuously intermixed with which are

(not projecting at all from surface as in *g. cornigera* O.S. <sup>wide</sup>)

greenish white semipellucid solid cells containing no larva & about size of grain of rice, axis perpendicular to surface of gall. [Basett - right about his species being double-brooded.] These last mostly adhere to bark on pulling it off & are fleshy but moderately solid & hard. Out of about 30 galls, nearly  $\frac{1}{2}$  are thus partially bored.

Gathered lot of *g. flosculus* galls (Black oak, see p. 149) now tinged internally with reddish brown, smooth & with no knobs like *seminata*. Cells very hard & woody. One contained chalcid larva & one a cynipidous pupa. They adhere



151/ scarcely to stem, like seminator galls  
- of over 25 spongifica galls opened today  
only 2 contained pupa of cynip. & those  
had been eaten into by tortrix larva & much  
long found therein & were thus prematurely  
opened. Then 2 came off oak on flats East  
of road "necrophorus corner."


Two chalcid. larvae found in spony galls  
were hairy. Callimome? or Decatoma? Must  
be Callimome, "hairy larvae found in strobil-  
lodes & galls, which produce no decatoma."

C. g. Chrobilana o.s. (like my C. g. prunus)  
has whole abd. pubescent (P.E.S.P. II p. 69)

June 5. On tree in Jonah Case's field, found  
about 40 pseudotincturae, <sup>some</sup> intermixed promi-  
nently on same bough with Spongifica.  
Only 6 or 7 Spongifica in all, besides 2 or 3  
destroyed by Sep. larva. Pseudot. grow from  
under side of leaf like spongifica &c. When  
ripe, are detached by the least touch. As I  
am certain that I found very numerous pseudot.  
under the Red Oak at Lib. & maculata corner,  
this species also (like g. prunus) must be  
common to Red & Black oak. (?) Osten Sacken  
thought it (m.s.) an undeveloped spongifica.  
Is it not his g. Centricola? No! Filaments of

152  
Hob gall with a "silky gloss" & g. prunus. This  
pseudotincturae has filaments very stout & cottony.

June 6. One g. prunus (opened) still in larva stage  
On Black Oak close to J. Case's back fence (large  
tree) strong 36 spongifica galls. Then galls on  
flats all still in larva west of Road; opened 2.

Pseudotincturae gall on Red Oak different  
rather from that on Black Oak. When <sup>recent</sup> ~~young~~  
green & pellucid (like inapis & nabulensis)  
& with brown dots  that on Black Oak  
when <sup>recent</sup> ~~young~~ opaque & powdery & no dots.  
The radiating fibres of the latter are coarser.

June 7 & 8 From galls g. flosculus (= operator o.s.)  
came out there days 86 & 88 without a single ♀, (the  
has a penis pointed & curved under abdomen. (s))  
besides at least a dozen more ♂♂ left in bottle.

June 9. Dths 85 & 86 & only 4 ♀♀.

June 10. Dths. Out of 54 counted from search  
52 were ♀♀. This was oak S. of Slaughtertown, on which  
I had hung off a bunch of galls spring of 1884.

June 11. Gathered galls off Slaughtertown Oak - 5  
of them, 3 badly eaten by Sep. larva (found on one  
noctuid green, white striped larva), & one small  
& shrivelled. The other one good. From one of the  
eaten ones, cynip pupa had apparently issued.  
Today from Case's field Spongifica came out one  
& S. flosculus.

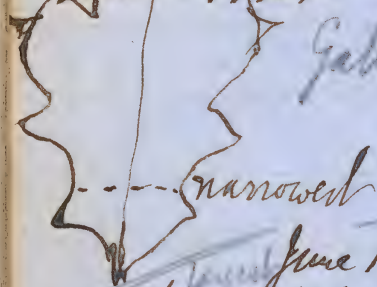


153 June 10. Took *G. vastus* in coitu ♂ & ♀. The ♂ embrace, the occiput (not neck) with his appendages, the superior ones behind the occiput the inferior ones before it.

June 11. On a basally bifid Red(?) Oak at West side of Gopher, riparius Plateau, strong 30 + 20(?) *spongifica* galls. Gall gone by recoll. on 4<sup>th</sup> July.

On a Black(?) Oak Sapling, with leaves almost as broad as long & very large, found 7<sup>th</sup> *spongifica* galls. Sapling on bluff, beyond fork going to Bluff Valley field, left of Road, opposite stump marked with brush. Sapling also marked with brush & blazed on East side twice.

Galls mostly badly eaten - Bark rough & up.



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See p. 108 for another *Oxya* larva

June 12. Three *Oxya* larvae on hickory. Length  $1\frac{1}{4}$  inch. The two normal black pencils on p. 1 & similar two on 12. Long black tufts close docked as usual on 4-7 & on 11, with a few grayish-white hairs intermixed. The short tufts ~~white~~ on 1-3, 8-10 & 12 yellowish with many white hairs intermixed. The lateral tufts all <sup>short above & beneath</sup> round & 4 inch long, the hairs of all lengths & whitish. All the hairs throughout (including pencils & docked tufts) bipectinate like a bird's plume under the lens. Skin dorsally black freckled with whitish, laterally whitish.

154 <sup>imperfect</sup> Head black. Body beneath ~~red color~~ pale greenish black. Prolegs yellowish, with <sup>medial</sup> an external black spot. Legs blackish [one sp. up July 5, one on July 29]

June 15. Set 80 *red* ground (glasp. by cap) larva

an early description of *Delphacella* [larva]

June 16. Found 12 *Callimome* (of *G. spongifica*) from *Microstigma* galls from "Cass's field".

June 23. Found a larva, evidently from its large head & pointed tail *Chalcidiform*, in the central cell of *G. globularis*. Not hairy.

*D. sculpha* [larva] also has abd. punctate but not hairy - (see p. 151x)

June 26. Examined closely 20 black-knots gathered yesterday. Cut into 3 or 4. No cells or cecid. larvae visible. <sup>non injure borings</sup> Noticed on one a vermilion red Thripide larva <sup>0.3 or</sup> 0.4 long. Two or three had been already (frass &c) bored by Lepid. larva which had gone. Distinct Cecid. cells in some old Black knots

A week ago out of 6<sup>th</sup> galls gathered had found a Lepid. larva in one, which I preserved. These B.K. galls arise from a slit which extends down to the pith & are now fleshy (but not juicy) with radiating fibres from axis of twig.




155 Gall prunus Tubicola. <sup>(see p. 153)</sup> A <sup>soft, hollow thin-shelled</sup> clavate gall .07 - .10 inch long, <sup>greenish yellow tub</sup> ~~usually~~ <sup>usually</sup> ~~found~~ <sup>found</sup> except at base with <sup>very red</sup> 20 - 30 of them growing from the upper surface of the leaf end of June (26<sup>th</sup>) with many young ones coming forward. Inside most (12 about) empty, but <sup>one</sup> ~~from one~~ <sup>one</sup> an elongate larva 4-5 times as long as wide & about .02 long, whitish with 3 or 4 ~~top~~ caudal pt. opaque yellowish. Head when entered very long & pointed & blackish at tip. Breastbone small dusky indistinct. Cecidomyidous? Four or 5 galls had already been open at tip. Gall opaque, with short rather sparse whitish hairs. Very abundant on wild plum. Similar gall on choke-cherry. <sup>See pp. 153 & 108</sup> June 27. *Drya* larva (1) taken on thorn. May differ from that of hickory (2 compared) only in there being a central dorsal pencil of clavate hairs on pt. II instead of an even short brush, & in there being on pt. 4-9 a single lateral black clavate hair surmounting the lateral whitish hairs. [Had open of July 8.] Came out a *Parorgyia* Beckard July 24.]

156 June 27? Larva of *Archopala robinia*. It ~~is~~ <sup>not</sup> at all <sup>not at all</sup> ~~clavate~~ <sup>clavate</sup> in front as drawn by v.s. Spiracles <sup>normal</sup> on mesothorax & on 1<sup>st</sup> 8 abd. segments. Length .07 inch. Prothorax <sup>not</sup> flattened above & below. Prothorax and brownish yellow, but whitish like red of body with 4 transversely arranged dorsal brownish-yellow wavyish spots. Six specimens. Had completely honey-combed a branch 1 1/2 inch in diameter heartwood Fall. [Larva preserved in alcohol.] The larva of *Sphyracampa designata* (?) when only .50 or .60 long, has a ~~fan~~ <sup>fan</sup> of ~~dorsal~~ <sup>dorsal</sup> horns, each ~~fan~~ <sup>fan</sup> ~~joined to the base~~ <sup>joined to the base</sup> capable of diverging & armed with little prickles, about 1/3 as long as body, <sup>& keeps the 2 left & the 2 right horns generally closely appressed.</sup> On pt. II is the normal horn, sprangled & fully equal to diameter of body. Joints 4-10 have <sup>small</sup> horns, all alike. <sup>on the different pt.</sup> June 30. 50 and *Brachygastera reticulata* S. under a log, alive. Feeds on subterranean larva? July 1. Opened 3 g. prunus: 1 with 7 or 8 Chalcid larvae: 1 empty: 1 one healthy cynipid larva. July 2. Attacks *Gynthea* with cat claws. One .50 inch long. (fresh gotten) <sup>on 2 different trees</sup> *Prunus tubicola* is now .20 long & 5 times as long as wide, and about 1/2 width of other part or more. <sup>Slit open</sup> 20, but found no larva. A few drying & turning brown at tip. No young now found open now.




July 2. *Peziz* larva on them still there.


July 4. Opened 3 *Pseudolinet*. Galls gathered gathered April 8 '62 on ground (*G. rubra*) & i. over 2 years old. Two contained perfectly shrivelled larva & one a plump (& living?) one. A dorsal dark vitta. Cynip. or Chalcid?

July 9. *Lepid.* larva (head ) of Black-knots; neither legs nor prolegs, yet walks freely on a smooth table. [*Conotrachelus nemophilus*?

July 12. Examined black-knot, & seemed to recognize a minute orange-colored larva in one of the Cecid. like cells like those of *C. s. batatas*. Two kinds of *Lepid.* larvae, one with a brown shield on 1<sup>st</sup> segment, the other simple. Found galls (Bk bl.) intermixed with old galls along the longitudinal slit formed by bursting of bark. i. not caused by *Leptothredo*. May be caused by ovipositional slit of *Ceresa*. But why not on other *Ceresa* stts, as in those detected by myself on Crab?

July 11. The oak-apples on <sup>Black oak</sup> tree E. of Case's field were all torn off & the string gone. Of the 36(?) picked up 27 under the bough. Could not have been torn off sooner than July 4 & probably by German Crow celebrating there on that day. Those on Red Oak inside S. field were all gone - none on ground.

July 17. In one of the last-gathered Black-knots found a *Lepid.* larva with distinct legs. Head yellowish  the emargination at a white like the rest of the body. While cutting into another Bk Kt. a scarlet

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strip larva suddenly emerged from the eaten <sup>larva</sup> when it had been eaten & left full of faeces by *Lep. larva* also a small white scarab. Re-examined the <sup>larva</sup> ~~larva~~ (head ) in the 2<sup>nd</sup> lot of galls. It was most certainly without legs & ~~prolegs~~ prolegs. Length .25 inch. <sup>4 times as long as wide</sup> Body yellowish white, ~~with~~ with whitish hairs, head pale <sup>or subopaque double</sup> rufous, shield on 1<sup>st</sup> seg. Bk Kt. much bored progs (which may contain another *Lep. larva*) & placed in separate bottle. <sup>July 22 dead</sup> I had no Cecid. larva.

July 18. Leaf-gall of *Veronica fasciculata*? just over Chipp. fence, end of Myodites Slough. <sup>often rosy above</sup> Galls. Fleshy, <sup>generally</sup> green, globular, projecting from both sides of the leaf, most of it above, & hollow with quite thin walls. <sup>often</sup> opens always below, in a round hole.

Larva .15 inch long, <sup>4 times as long as wide</sup>, tapered at both ends. Anal segm. <sup>20</sup> .39 inch. Head large, rounded. <sup>slight ridge of</sup> breast-bone. Orange with not very distinct curved, bowl-like markings: 12 segments + head <sup>very</sup> distinct; 3 thor. segm. legs humbled than abd. A dorsal? or <sup>ventral</sup> series of fleshy caruncles on abd.

pts 1-7, by aid of which it rolls rapidly over sideways: 2 sp. Pupa. Length .15 inch <sup>including antennal horns</sup>, which are = diam. of body, <sup>placed symmetrically behind ant. horns</sup> setose, then basal  $\frac{1}{5}$  suddenly thickened. Ant. horns conical in  $\angle$  of 60°, diverging at 90°. Legs scarcely extending beyond centre of body. Segments much hunched laterally & rolls over like larva. Color <sup>pale</sup> sanguineous, abd. with same markings as larva. No thor. bristles. Front pairs, especially <sup>very large, almost black, just before coming out</sup> large, almost black, sometimes 2 sp.

Many galls were bored & empty, July 17. Some 17 on one leaf, partially confluent. <sup>2 more (young)</sup> Larva exam. Breast-bone pale, <sup>but distinct in pupa</sup> clove-shaped. Pseudopod abd not dorsal. In two larvae found a small lateral feeding parasite larva, probably <sup>Chalcid</sup> Chalcid. <sup>many cells</sup> <sup>July 19</sup>



159  
Contained July 12. chalcide pupa, with a black  
probably exuvia of larva.  
Found in all  $\frac{2}{3} + 3$  galls which contained pupa the exu-  
via of the larva, milk-white, but distinctly  
showing segments of larva. Preserved. In <sup>the</sup> ~~one~~ found  
hairy, orange larva, probably Callinome. In  
the cell (where many were confluent together) found  
two pupae & two exuviae. Larval exuviae  
easily seen because gall is green.



161 a very similar but larger gall on wild cherry almost all now split open laterally, so as to show inside fuzzy like <sup>brown</sup> woollen cloth. A great many had broken off from the peduncle, ~~leaves~~ & gone. Of 22 <sup>old</sup> opened carefully, & that had not burst open, one contained a chalcide pupa .05 long, & 21 were absolutely empty. Appears to be a second crop of these galls just sprouting up from same leaves. Is the insect double-brooded, the 2<sup>nd</sup> brood going underground for the winter? Otherwise how propagate?

Larvae of *Oxyia* & *Dasychira*

	<i>Leucostigma</i>	Willow D.	Thorn D.	Hickory D.
Joubt 1	2 black pencils	2 black pencils	2 bk. pencils	2 bk. pencils
Joubt 4-7	dorsal yellowish crush	dorsal whitish crush	dorsal black crush	dorsal black crush
Joubt 11	dorsal bk pencil	dorsal bk pencil	dorsal bk pencil	dorsal black crush
Joubt 12	o	legs obscure & slenderer bk pencils (2)	2 black pencils	2 black pencils

[Compiled from pp. 108, 153 & 155. *Leucostigma* from Morris Synopsis]

The 3 *Dasychira* have probably all been confused under *Achatina* Hubner, though they differ essentially in larva. *Rosai* & *basiflora* Richard don't agree, the former having hind wings yellowish & the latter the base of front wings so. Probably the 3 *Dasychira* are phytophagous species, differing in larva only. *Oxyia* *Leucostigma* varies so much in the markings of imago, that probably Willow D = Thorn D = Hickory D. Sorry to disturb the self-satisfied repose of certain entomologists lepidopterists who describe <sup>variable</sup> species from solitary specimens & have the most supreme contempt for larval & pupal characters; but science is science & her calls must be obeyed, though it is only in the field & the woods that we can arrive at a correct knowledge of specific

162 distinctions. The closet-naturalist is at the mercy of any collector who is mischievous or careless or dishonest enough to send him the two ends of the series of in variable species, retaining or suppressing the intermediate grades. Thus Dr. Harris made 5 species out of *Tetria ornata* Say, & Fitch has made 3 species out of *Athyrium variabilis* (Tetrigon.) The closet-naturalist again, can know nothing of larval forms or the plants they feed on, & so long as two imagos agree in their character, though the larvae may differ either structurally or colorationally or both, ~~the~~ he <sup>dogmatically</sup> pronounces the two to be identical. Of the 3 states in which an insect exists, he knows only the third & judges & decides only from the third; which is just as irrational as if he were to cut off <sup>& throw away</sup> the wings & legs of an imago & judge & decide ~~specific~~ questions of specific distinction from a consideration of its body alone.

N.B. Harris of larva of *Arctia isabella* & *Parthenope* under lens. *Parthenope* more  $\nabla$  perpendicularly so. How *Heliothis*? [Faintly illegible]

July 26. Cut open one of the Willow *Cimbex* cocoons. Still in larva & quite <sup>5 or 6 days</sup> lively.

July 25 larva of *Thyris* *Atollae* had gone underground yesterday, Aug 2.6

July 28. Gathered a green, fleshy, apple-like, sub-globular terminal gall, imbricated outside with deformed leaves, from *Silphium perfoliatum*. Inside many cells containing *Curculionid* larvae .1 inch long. [Faintly illegible]




N. Y. Tribune  
July 25. 1865

July 30. Gathered some more Black-Knot. Left  
juicy now, but still fleshy, like a very juicy  
apple. Surface covered with short, cylindrical,  
densely-set, blunt prickles, which in places have  
apparently fallen off, leaving the Sphaeria more  
or less consisting of naked, round disks.

Cut into 2 or 3 galls. Found one whitish  
larva .07 inch long, partly damaged, about 3 times  
as long as wide. Curculio? Was in Cell with pup.  
Also, one minute larva, about .02 long, elongate  
(5 times as long as wide) & travelled rapidly. Dip-  
terous? Considerable appearance of incipient  
Cecid. cells, but still solid. Internal surface now  
deep black, not brown-black, as before.

July 31. Found numerous Cytha marginata  
feeding on Silphium perfoliatum. Leaves much  
eaten.

— On same grape.  a bunch of fusiform green  
galls, each about .6 inch long & .4 in diameter, the  
basal  $\frac{2}{3}$  smooth, the term  $\frac{1}{3}$  pubescent, growing on  
stem. Inside fleshy, juicy, subacid with a  
long central cell .25 long & .06 in diameter. Larva  
deep orange, the disk of dorsum paler: segment

bearing breastbone hid above; breast-bone 11 inch. The specimen.

11 inch. The specimen.  
[From Silliman May 1865 p. 362-3. by Dr. W.C. Minor]  
Dr. Wagner's classification of generation in Articulata.  
"I. A non-sexual spontaneous multiplication of the  
larve-nurse (Amme) with sexual generation of the  
developed animal. Germ metamorphosed out of the fat  
or granular substance of the larve-nurse, & the animal  
has 3 or 4 transformations. — Cestodes & Trematodes.  
"II. Larves with sexual organs. — Aphides.

"III Multiplication only in the perfect sexual  
animal; a. in both ♂ & ♀ but without sexual in-  
fluence — Daphnide. b, in one sex only, without  
sexual influence — Bees & some butterflies. c,  
in one sex only, under the influence of fructification.  
"Parthenogenesis is a germination of buds in special  
sexual organs, though without fructification;  
alternate genesis is a self-transformation, also  
unfructified, of tissue into germs or buds, without  
any special organ for the transformation. No. I  
belongs to Alternate genesis; II & partly III to Parthe-  
nogenesis."

It is perhaps not premature to state here, that the  
writer has found a number of large, oval germs  
in some minute larvae observed lately.\*\*\* To judge  
from the difference in shape of the larvae's head,  
these were not of the same genus.

Aug 5. Saw a Vespa maculata (bald-faced hornet)  
with a muscicle or Tachinide about size of  
a house-fly in its mouth. Aug 6. Saw one actually  
eating a muscicle? or Tachin?



105) Aug 6. Bk Knot still as green as before most of them, though a few are dried & turned inside of a reddish brown. Noted on the naked wings bearing Bk knot the Sphacteria morlora filaments <sup>not very</sup> thickly attached to bark <sup>to some</sup> distance from it.

Aug 87. The *Ichneumonide* (red *Pelops lunatus*) & the similar species without antennal annulus & areolet, both have nearly the peculiar smell of *Bombus*.

Aug. 10 Found *Tetyra femoralis* Say on the back of  
a larva 1 inch long of *Papilio Asterias*, which it  
had sucked half dry.

As soon believe that there are genera of points  
calicos, as that genera have a real existence  
in nature.

Mr. Gow informs me that at his home in Western Penna eight years ago *Archopalus robiniae* (he knows the insect) was very abundant & destroyed many or most locusts. Returning there this year he found no signs of its work & the locusts flourishing, many of them large trees much older than eight years. Hence, the insect must migrate.

Aug. 15 Fred Semanides Delapier from paper  
found a few days ago on a grass-stalk.

May 16. <sup>1887</sup> *Phyllocnistis*? (came as supposed *Phyllocnistis* gall) 166  
 producing a *Diplosis* - see above). A *globular*, *specie*,  
 solid, fleshy, *polythalamous*, gall. 4 - <sup>1.4 inch</sup> *diameter*  
 growing <sup>often</sup> <sup>in</sup> <sup>branches</sup> of <sup>about 1/4 of diameter</sup> <sup>of</sup> <sup>some of them</sup> <sup>perfectly confluent, on the stem.</sup> <sup>Surface often</sup>  
 partially covered with brown *roughness*, like that of  
 a *rusty* apple & occasionally cracked open at tip <sup>shallow cracks</sup>  
<sup>with 3 times as long as wide</sup> <sup>pieces, darker at tip</sup>  
 Pupae .18 long, *fulvous*. Antennal horns  $\frac{1}{3}$  diameter of  
 body, *parallel*, *contiguous* basal  $\frac{2}{3}$ , when  
 they diverge at about 30°. Dorsal abd. surface of all  
 the *ps* (except the two basal "bogie-abd" joints, & the  
~~small anal joint~~, 7 in number, with two transverse  
 arranged rows of blackish minute close-set thorns  
 equidistant from each other & from sutures. Thoracic  
 bristle very slender,  $\frac{2}{3}$  as long as ant. horns. Legs *staminal*  
 base of penult. abd. On the lower surface of head  
 2 robust conical thorns long? arranged, the last  
 near the suture with thorax. No postscutellar seta.  
 Found a hairy, white, chalcid larva in gall,  
 .17 long; ~~also an elongate, *Phyllocnistis* or *Lachnospidius*?~~ <sup>another (smaller) chalcid.</sup>  
 hairy larva had <sup>anterior</sup> blackish. very often 2 in 1 cell.  
 Larva lives in cells <sup>toward</sup> <sup>near</sup> centre of gall. [Another small  
 chalc. larva an external feeder on cec. larva.] Largest  
 seen .15 long, 4 times as long as wide, yellowish with the  
 usual candy-white markings. Head pointed, with a  
 distinct black dot on dorsal surface. <sup>Reclined</sup> <sup>at 45°</sup> <sup>close-shaped,</sup> <sup>with two robust</sup> <sup>terminal divergent</sup> <sup>porated</sup> <sup>horns</sup>, each  $\frac{1}{3}$  as long as whole b.b. Spiracles  
 black & distinct. One pair on mesothorax & one on abd.  
 except anal. No metathoracic one. Often lies curved  
 back concave, unlike all willow larvae. Jumps like a  
 cheese-maggot, one under the lens was seen to jump *abd. convex*  
<sup>by bringing head & tail together.</sup>



167  
Aug. 17. Opened 12 or 14 <sup>167</sup> Aster leaf-galls; found 3 or 4 with Proctotr. larva like weevil. Preserved also 2 with external feeding Chalcids? larva. No healthy larva or pupa. Larva does not certainly jump, like Asteris globulus larva, but rolls over laterally. The galls containing the above were not open as with the empty ones. Hence hole must be bored by pupa, not natural growth.

One <sup>167</sup> Asteris globulus found yesterday, was bored by 7 holes, the Cec. pupal rudiment still projecting from one hole. [?? came out 18th & 19th = Diptera]

The "bolls" in waxy of so many ~~Chalcids~~ <sup>Chalcids</sup> are proof of greater origin. Always 5 (if any) & always in the same location. Might be arranged in a billion different ways on other veins, more or fewer, nearer or further &c.

Aug 21. Three larvae of a Cuterebra taken out of the neck of a rabbit <sup>about</sup> 1.40 inch long & .75 inch in diam. <sup>brownish</sup> rufous color, covered by very close set black tubercles or short horns. Two buried themselves in 3/4 hour under mold sand; the other still restless. Can progress as fast as a slow caterpillar by <sup>successive</sup> contraction of segments. Turned himself two hours after.

Aug 22. Gall Celtidos lituus (Cecid.) A trumpet-shaped, hard, polished, green gall on the under side of the leaves of hackberry in company with Phyllade gall (Dc.) attached by only the central portion of the expanded

168  
end of the trumpet to the <sup>yellowish walls, thin.</sup> under side of the leaf. Tip extreme curved with peak. Length .16 - .20 inch, the tip often slightly curved. Basal diameter .10 - .13 inch.

Larva milky white, .075 inch long 2 1/2 times as long as wide, yellowish brown, <sup>distinct</sup> & shaped, the 3 arms subequal, the basal arm robust, the terminal arms exactly parallel. Gall Celtidos cucurbita (Cecid.) An irregularly oval gall of a greenish white color with a pink or sometimes purple cheek like an apple, its sides <sup>more or less</sup> ~~obscurely~~ <sup>marked</sup> by an irregular bulging cord on round their middle, so as to resemble somewhat a summer squash. Length .08 - .12 & diameter a little less except in the most mature spec<sup>s</sup>. when it is a little more. Attached by a point only to under side of a small terminal nodule surrounded by an

Larva like lituus, but arms & diverge slightly. Gall Celtidos mamma (Phylladous.) A large, <sup>mistle-like</sup> green hard but somewhat fleshy gall growing from the under side of the leaf, often 12 or 15 in number. Length .20 - .33 inch, & diameter about .20. A deep hollow on upper side of leaf with <sup>central</sup> minute nodule occasionally 2 confluent <sup>subcylindrical</sup>, tip rounded & generally a lateral construction. On cutting into it it is found to be composed of a fleshy cap surmounting the hard <sup>arched</sup> <sup>or semicircular</sup> base of the gall, like a large inverted teacup surrounding a small inverted tea-saucer; & in the space between the "saucer" & the "cup" lies the larva.

The above 3 often occur on the same leaf, but are very distinct, each may be recognized at a glance.





William C. C. C. C.

Sept. 5. 1884



167 Aug. 17. Opened 12 or 14 <sup>Hesperia</sup> Aster leaf-galls; found 3 or 4 with Proctotr. larva like Wesw. figure. Present also 2 with external feeding Chalcide? larva. No healthy larva or pupa. Larva does not certainly jump, like Aster globulus larva, but rolls over laterally. The galls containing the above were not open as with the empty ones. Hence hole must be bored by pupa, not natural growth.

One <sup>Hesperia</sup> Aster globulus found yesterday, was bored by 7 holes, the Cec. pupal rudiment still projecting from one hole. [?? came out 18th & 19th. = Diptera]

[The "bulbs" in wings of so many Hesperia are a proof of glaucous origin. Always 5 (if any) & always in the same location. Might be arranged in a billion different ways on other veins, more or fewer, nearer or further etc.]

Aug 21. Three larvae of a Culebra taken out of the neck of a rabbit <sup>about</sup> 1.40 inch long & .75 inch in diam. <sup>rough</sup> color, covered by very close set black tubercles or short hairs. Two buried themselves in 3/4 hour under moist sand; the other still restless. Can progress as fast as a slow caterpillar by <sup>successive</sup> contraction of segments. <sup>turned himself two</sup>

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168 end of the trumpet <sup>to the under side of the leaf. Tip</sup> extreme lined with pink. Length .16 - .20 inch, the tip often slightly curved. Basal diameter .10 - .13 inch.

Larva milky white, .075 inch long 2 1/2 times as long as wide, yellowish brown <sup>distinct</sup> breast bone, & shaped, the 3 arms subequal, the basal arm robust, the terminal arms scarcely parallel. Gall Celtidos cucurbita (Cecid.) An irregularly oval <sup>or subglobular hard</sup> gall of a greenish white color with a pink or sometimes purple <sup>purple</sup> cheek like an apple, its sides <sup>more or less</sup> ~~irregularly~~ <sup>irregularly</sup> bulging <sup>in the most mature specimens with</sup> an irregularly bulging cord on round <sup>the</sup> middle, so as to resemble somewhat a summer squash. Length .08 - .12 & diameter a little less except in the most mature specimens when it is a little more. Attached by a point only to under side of leaf. A small terminal nipple surrounded by an "aureole"

Larva like lituus, but arms & diverge slightly. Gall Celtidos mamma (Phylloids.) A large, <sup>milk-like</sup> green hard but somewhat fleshy gall growing from the under side of the leaf, often 12 or 15 in number. Length .20 - .33 inch, & diameter about .20. A deep hollow <sup>corresponding in size</sup> on upper side of leaf with <sup>central</sup> minute nipple occasionally 2 confluent <sup>subcylindrical</sup>, tip rounded & generally a lateral construction. On cutting into it it is found to be composed of a fleshy cap surmounting the hard <sup>irregularly</sup> <sup>arched</sup> <sup>or subglobular</sup> base of the gall, like a large inverted teacup surmounting a small inverted tea-saucer; & in the space between the "saucer" & the "cap" lives the larva.

The above 2 often occur on the same leaf, but are very distinct, each may be recognized at a glance.



187 Aug 22. Found two *S. concolor* on the  
*S. discolor* in Chippewa. Gathered one  
for Armistead, left the other. ~~Noticed~~  
Noticed *Setysa fimbriata* sucking the  
honey of a flower.

Noticed the Orckellman of willow appa-  
rently chewing up a muscivore? about .15 long.

Aug 23. *L. podagrace* galls. Noticed two or 3 bored  
out of many in the field. Cut into bored one &  
found a black pupa, apparently cynipidous.  
Others (unbored) contained only larvae.

Gathered very many *g. erinacei* galls. One  
was bored, others apparently so. 58 galls

31 top of leaf, 27 below, one small gall  
contained 2 white larvae (cynipidous, black, snapping  
mandibles). 1 inch <sup>& dark of body, blackish</sup> long. Another much bored a very  
elongate biped. larva, & another with pupa outside  
had such a larva outside.

Of 22 galls opened, one was 6-8 celled, 14-celled,  
5-3-celled, 8-2-celled & 71-celled. Of the whole  
number of cells about 11 cont. what were apparently  
cynipidous larvae, & three of them with a blackish  
oval body (egg of an *Opkion*?) attached to them by a  
peduncle 1/2 as long as itself. 11 contained what were  
apparently cynipidous larvae judging from black-  
tipped snapping mandibles, 5 contained chalcids pupae,  
one a chalcid. mass & one what, evidently from another

a cynipidous ~~larva~~ pupa, the remainder 17 being empty.  
One of the curcul. larvae had the ~~sucked~~ empty  
intestine of the victim Cynip. attached to it, &  
one was detached from the others with dorsal caruncles.  
Curcul. perhaps = ~~chalcid~~? their cells so fragile.

Found no galls without prickles, but longer in some  
than in others. Wear off in winter?

Aug 25 Gall *Salicis piceum* on *S. discolor*. An irregular,  
spherical, <sup>light green</sup> pale yellowish green gall always growing  
on the under side of the leaf & attached by only  
a very small portion of its surface .18 - .28 inch  
in diameter & a few which were probably immature  
only .08 in diameter. The surface of the gall is ~~glabrous~~,  
<sup>with pubescence</sup> smooth & even, in others a little shrivelled;  
studied in the medium-sized ones with 4-12 small  
trifles, which in the largest <sup>ones</sup> have burst ~~at top~~ into  
a scarious brown scar. Only in 3 out of 62 galls  
was there any rosy check as in *S. piceum*. The  
point of attachment is marked on the upper side  
of the leaf by a brown <sup>sub</sup>hemispherical depression  
about .04 in diameter. Described from 62 galls.  
wall of gall

almost invariably there is but  
one gall to one leaf, but  
on <sup>4</sup> ~~3~~ leaves there were  
2 <sup>in 2</sup> ~~in 2~~ of them, & occasionally  
two are confluent.

anal.  
Larva. [3, 0, 6, 0, 1, 3] 3, 0, 6, 0, 1  
[20] footed, whitish-hyaline .17 long, 6 times as  
long as wide, head <sup>slightly</sup> fixed with dusky, mouth dusky,  
eyes circular & black. Holds its body behind legs  
in the air (wrote II. 104\*) Anal segment = 2 others  
& divided by an apparent medial suture. Could discern  
no anal. prolegs



171 On the same tree with above (road to B.H. cave)  
occurred 13 galls scarcely distinguishable from  
S. pomum except by having the same rough  
bursling nipples as the above. One or two of them  
as well of preceding, were bored probably by  
anthren. scutellatus, & empty.

Aug 26. A curcul? hairy larva came out  
of hickory woody gall. about .19 long. Yellowish  
L. fusus (beat off black oaks) ovals, length  
.40-.83, diameter .30-.60, generally pointed  
at top like an ovate leaf, & attached at  
base by a small mealy portion & apparently  
in bunches, from the <sup>rough</sup> base of wood. Larva  
g. formosa Papill? Color green, gradually paler  
towards base. Perceptible at base, dotted with  
elevated purple papillae dots. Punctured

today most of them with 2 or 3 minute pin  
sized holes. One is not so pointed at tip,  
& almost entirely dull purple, dots still plainly  
visible. { Preserved } Found on a red oak sp. 25

Aug 25. D. pilula (Cecid. gall) just beginning to appear.

Aug 27. { The Swelling } along principal veins of  
black oak leaves common in spring & through  
the summer. Contain now each 1 cecid.  
larva, whitish, .04 long, tip of head blackish  
& breast bone (a more round) blackish.

Examined 3 specimens. { Differ from 2.5 3.5 } (172)  
Found several galls on leaves of black oak in woods  
C. g. modesta 2.5-3.5 on red oak? in woods  
J. M. Wright N. of J. B. Warren's lot

from the river. } on 2. tructoria pale green  
D. eruce (cecid. gall) An elongated, ~~thin~~ pale green  
im-pubescent but rather rugose swelling along the  
midrib & principal veins, <sup>attached to them for its entire length by a small</sup> looking like a green  
midepidopterous larva attached to them. .20-.35 long,  
& about .05 in diameter; internally hollow, <sup>thin</sup> with hard  
woody walls. Its general shape is cylindrical, tapering  
at each end, & it is <sup>generally</sup> constructed at irregular  
intervals by 2 or 3 transverse veins proceeding from the  
vein to which it is attached.

Found about Aug 20 1 green green with  
pink check. Apparently recently grown.  
{ Papill scarcely even gives dates of breeding  
has 2 sp. Great defect: - they have  
to his work over again }

Aug 27. aciculate all now in pupa state. Some  
pupa & no larva. Found in "pear-shaped"  
galls. Cuck's field 30 40 Calluna (12 above, 10  
below) of p. spongifica. Most have 1 larva, 1st  
inst. in July.

Aug 28. 88 sp. Ser-  
nicei; 44 above, 44  
beneath, on leaf.  
(some have on the edge of  
the leaf but not on the  
generally)



July 28. A specimen of *g. fuscus* gathered today, very  
thick & sub-ovoid. Another gathered about 18th or  
20th, was pale yellowish green with pink cheeks.  
It fell <sup>on *g. tinctoria*</sup> *g. fuscus* but on edge of leaf  
(often same leaf with *g. fuscus*) & containing an  
orange larva .10 long, 4 days or longer in web, sub-  
cylindrical, flattened, brownish, head brown, legs  
& joints  $\approx$  a deflexor. [3 specimens] very slender?

Larva of *g. fuscus* whitish, .14 inch on 3-  
3rd larva, long as wide. Head-bone sub-round.  
Does not jump, but rolls over sideways like larva  
of *Rohr* leaf-galls. Found 11 <sup>but 11 or 12 long</sup> similar larvae in one  
of edge galls. The larvae irregular, one peculiar.  
The orange one, being the largest, peculiar one is  
the pale one only occurs 2 or 3 in a gall: cupulating  
but dry out 15-20 of the small *g. fuscus* larvae from  
galls on veins, none longer than .04 from orange or  
yellowish.  $\approx$  two distinct species & the two white  
ones in edge galls (= *g. fuscus*) irregular?

*g. patella* (oak-spangle), on white oak. A  
saucer-shaped, flattened gall on the lower side  
of leaves, 2-15 together, the lower surface  
attached by a central very short peduncle to  
leaf, the outer surface a little hollowing,  
with a central nipple & <sup>subpedate</sup> fibres radiating  
from it to the circumference like spokes of  
a wheel. Color generally pink, (3 leaves)

on one leaf which <sup>appears to</sup> be a distinct species (very distinct)  
as the gall is <sup>cupped</sup> & the radiating fibres very distinct  
centrally pale green, laterally dark green tinged  
with purple. Could find no larva.

Aug 28. Found many *Bruchus abbreviatus*? <sup>on pods of</sup> *Cassia Marylandica* L. (determined  
by Dr. Parry.) [resembles *Amygdalus fuscicornis*]

My *Asteris globulus* & *Ast. bulla* must be  
*helianthi globulus* & *auctore* Dr. Parry.

The skin of larva of *A. Harmeri* is whitish  
(mature larva), the pupa only blackish & elongated.

Aug. 30 Cedar fungus (old) unboiled, except 2  
in which I found with plenty of pupae &  
larvae (being) much like that of *Pubescentia*  
*ferrugis*. Not leathery.  $\approx$  no lateral eye-fish  
Not sep.  $\approx$  head not  $\odot$ . Callion?  $\approx$   
on compressing abd., there are two small oval  
knobs 1/3 of hairy or pubescent at tip of ovary  
in  $\odot$  *Asteris* (= *helianthi*) *globulus*.

Aug 31 of 3 *Sphing.* *brecher* in cage No. 6  
2 had gone under apparently. The other  
healthy. (See p 175)

The  $\odot$  shells found adhering to twigs of  
white oak beyond Durlop's field contain now  
hundreds of minute, oval, white eggs, 2-2 1/2



174 as long as <sup>some mandibles</sup> wide & resembling grains of rice.  
Length about .02 inch. [Spiders eggs?] Cicada.

Aug 31. Prod. *Conotrachelus* *Neuraphis* from  
Black Birch. Prod. another early in season.  
Date ~~is~~ recorded. [July 22]

Found 3 or 4 large *Oryza leucostigma* larvae  
on Sycamore. This feeds on nearly same trees  
as *Hel. kollaris* + *Sycamore*: - nothing peculiar  
in that tree universally inimical to arctian larvae.

Sep. 2 larva in *g. ficus* now .07 long, white, with  
large, scaly head, tips of jaws fuscous & snap together.  
Crustacei supposed curcul. is really ~~chalcidous~~ <sup>larva in g. + 1</sup> ~~larva~~ <sup>larva</sup> showed no mandibles. <sup>from central cell.</sup> One  
chalcid.? larva with pointed tail showed subfused  
mandibles, & 3 others with disk of body blackish toward  
tail ~~the same~~ very plain fuscous-tipped mandibles,  
which snapped. Several bunches of galls gathered  
yesterday had galls alternately pale yellowish  
green & bright rosy. Some now brown & partially  
ripe, some pale yellowish green & some dotted  
with rosy cheek.

Found 2 large white larvae  $\frac{1}{4}$  inch long &  $3\frac{1}{2}$  times  
as long as wide embedded each in a cell in the  
lateral spong of *g. globulus*. Head large & scaly  
tips of mandibles fuscous. Ichneumonid? or  
some eulophid? lepid?

Gall *g. pulula* <sup>on red oak</sup> now contained, beside 1 orange cecid.? (175)  
larvae, chalcid.? larva with fuscous-tipped snapping  
mandibles; one cell had two in it. Almost every gall  
was hollow with 2 cells (about) & contained one or  
more of them chalcid.? larvae. Examined 12 or 14.

Two crops of the gall-like fungus on red Cedar  
about Aug 25. The old, dry, last year's ones are  
free from booms (except a few in two which  
had bored & perished there in larva state.)  
Not galls: - Bk Knot (analogous) not a gall,  
but an epiphytous fungus.

From very small & immature galls, apparently of  
*g. globulus*, recently found, this must be an  
antennal gall.

Sep. 3 *Dryc. bicolor* larva still on leaves, 2 1/2  
gone under. Now 2 inches long. Sep. 4 <sup>5.5</sup> <sup>7.5</sup> <sup>8.5</sup> <sup>9.5</sup> <sup>10.5</sup> <sup>11.5</sup> <sup>12.5</sup> <sup>13.5</sup> <sup>14.5</sup> <sup>15.5</sup> <sup>16.5</sup> <sup>17.5</sup> <sup>18.5</sup> <sup>19.5</sup> <sup>20.5</sup> <sup>21.5</sup> <sup>22.5</sup> <sup>23.5</sup> <sup>24.5</sup> <sup>25.5</sup> <sup>26.5</sup> <sup>27.5</sup> <sup>28.5</sup> <sup>29.5</sup> <sup>30.5</sup> <sup>31.5</sup> <sup>32.5</sup> <sup>33.5</sup> <sup>34.5</sup> <sup>35.5</sup> <sup>36.5</sup> <sup>37.5</sup> <sup>38.5</sup> <sup>39.5</sup> <sup>40.5</sup> <sup>41.5</sup> <sup>42.5</sup> <sup>43.5</sup> <sup>44.5</sup> <sup>45.5</sup> <sup>46.5</sup> <sup>47.5</sup> <sup>48.5</sup> <sup>49.5</sup> <sup>50.5</sup> <sup>51.5</sup> <sup>52.5</sup> <sup>53.5</sup> <sup>54.5</sup> <sup>55.5</sup> <sup>56.5</sup> <sup>57.5</sup> <sup>58.5</sup> <sup>59.5</sup> <sup>60.5</sup> <sup>61.5</sup> <sup>62.5</sup> <sup>63.5</sup> <sup>64.5</sup> <sup>65.5</sup> <sup>66.5</sup> <sup>67.5</sup> <sup>68.5</sup> <sup>69.5</sup> <sup>70.5</sup> <sup>71.5</sup> <sup>72.5</sup> <sup>73.5</sup> <sup>74.5</sup> <sup>75.5</sup> <sup>76.5</sup> <sup>77.5</sup> <sup>78.5</sup> <sup>79.5</sup> <sup>80.5</sup> <sup>81.5</sup> <sup>82.5</sup> <sup>83.5</sup> <sup>84.5</sup> <sup>85.5</sup> <sup>86.5</sup> <sup>87.5</sup> <sup>88.5</sup> <sup>89.5</sup> <sup>90.5</sup> <sup>91.5</sup> <sup>92.5</sup> <sup>93.5</sup> <sup>94.5</sup> <sup>95.5</sup> <sup>96.5</sup> <sup>97.5</sup> <sup>98.5</sup> <sup>99.5</sup> <sup>100.5</sup> <sup>101.5</sup> <sup>102.5</sup> <sup>103.5</sup> <sup>104.5</sup> <sup>105.5</sup> <sup>106.5</sup> <sup>107.5</sup> <sup>108.5</sup> <sup>109.5</sup> <sup>110.5</sup> <sup>111.5</sup> <sup>112.5</sup> <sup>113.5</sup> <sup>114.5</sup> <sup>115.5</sup> <sup>116.5</sup> <sup>117.5</sup> <sup>118.5</sup> <sup>119.5</sup> <sup>120.5</sup> <sup>121.5</sup> <sup>122.5</sup> <sup>123.5</sup> <sup>124.5</sup> <sup>125.5</sup> <sup>126.5</sup> <sup>127.5</sup> <sup>128.5</sup> <sup>129.5</sup> <sup>130.5</sup> <sup>131.5</sup> <sup>132.5</sup> <sup>133.5</sup> <sup>134.5</sup> <sup>135.5</sup> <sup>136.5</sup> <sup>137.5</sup> <sup>138.5</sup> <sup>139.5</sup> <sup>140.5</sup> <sup>141.5</sup> <sup>142.5</sup> <sup>143.5</sup> <sup>144.5</sup> <sup>145.5</sup> <sup>146.5</sup> <sup>147.5</sup> <sup>148.5</sup> <sup>149.5</sup> <sup>150.5</sup> <sup>151.5</sup> <sup>152.5</sup> <sup>153.5</sup> <sup>154.5</sup> <sup>155.5</sup> <sup>156.5</sup> <sup>157.5</sup> <sup>158.5</sup> <sup>159.5</sup> <sup>160.5</sup> <sup>161.5</sup> <sup>162.5</sup> <sup>163.5</sup> <sup>164.5</sup> <sup>165.5</sup> <sup>166.5</sup> <sup>167.5</sup> <sup>168.5</sup> <sup>169.5</sup> <sup>170.5</sup> <sup>171.5</sup> <sup>172.5</sup> <sup>173.5</sup> <sup>174.5</sup> <sup>175.5</sup> <sup>176.5</sup> <sup>177.5</sup> <sup>178.5</sup> <sup>179.5</sup> <sup>180.5</sup> <sup>181.5</sup> <sup>182.5</sup> <sup>183.5</sup> <sup>184.5</sup> <sup>185.5</sup> <sup>186.5</sup> <sup>187.5</sup> <sup>188.5</sup> <sup>189.5</sup> <sup>190.5</sup> <sup>191.5</sup> <sup>192.5</sup> <sup>193.5</sup> <sup>194.5</sup> <sup>195.5</sup> <sup>196.5</sup> <sup>197.5</sup> <sup>198.5</sup> <sup>199.5</sup> <sup>200.5</sup> <sup>201.5</sup> <sup>202.5</sup> <sup>203.5</sup> <sup>204.5</sup> <sup>205.5</sup> <sup>206.5</sup> <sup>207.5</sup> <sup>208.5</sup> <sup>209.5</sup> <sup>210.5</sup> <sup>211.5</sup> <sup>212.5</sup> <sup>213.5</sup> <sup>214.5</sup> <sup>215.5</sup> <sup>216.5</sup> <sup>217.5</sup> <sup>218.5</sup> <sup>219.5</sup> <sup>220.5</sup> <sup>221.5</sup> <sup>222.5</sup> <sup>223.5</sup> <sup>224.5</sup> <sup>225.5</sup> <sup>226.5</sup> <sup>227.5</sup> <sup>228.5</sup> <sup>229.5</sup> <sup>230.5</sup> <sup>231.5</sup> <sup>232.5</sup> <sup>233.5</sup> <sup>234.5</sup> <sup>235.5</sup> <sup>236.5</sup> <sup>237.5</sup> <sup>238.5</sup> <sup>239.5</sup> <sup>240.5</sup> <sup>241.5</sup> <sup>242.5</sup> <sup>243.5</sup> <sup>244.5</sup> <sup>245.5</sup> <sup>246.5</sup> <sup>247.5</sup> <sup>248.5</sup> <sup>249.5</sup> <sup>250.5</sup> <sup>251.5</sup> <sup>252.5</sup> <sup>253.5</sup> <sup>254.5</sup> <sup>255.5</sup> <sup>256.5</sup> <sup>257.5</sup> <sup>258.5</sup> <sup>259.5</sup> <sup>260.5</sup> <sup>261.5</sup> <sup>262.5</sup> <sup>263.5</sup> <sup>264.5</sup> <sup>265.5</sup> <sup>266.5</sup> <sup>267.5</sup> <sup>268.5</sup> <sup>269.5</sup> <sup>270.5</sup> <sup>271.5</sup> <sup>272.5</sup> <sup>273.5</sup> <sup>274.5</sup> <sup>275.5</sup> <sup>276.5</sup> <sup>277.5</sup> <sup>278.5</sup> <sup>279.5</sup> <sup>280.5</sup> <sup>281.5</sup> <sup>282.5</sup> <sup>283.5</sup> <sup>284.5</sup> <sup>285.5</sup> <sup>286.5</sup> <sup>287.5</sup> <sup>288.5</sup> <sup>289.5</sup> <sup>290.5</sup> <sup>291.5</sup> <sup>292.5</sup> <sup>293.5</sup> <sup>294.5</sup> <sup>295.5</sup> <sup>296.5</sup> <sup>297.5</sup> <sup>298.5</sup> <sup>299.5</sup> <sup>300.5</sup> <sup>301.5</sup> <sup>302.5</sup> <sup>303.5</sup> <sup>304.5</sup> <sup>305.5</sup> <sup>306.5</sup> <sup>307.5</sup> <sup>308.5</sup> <sup>309.5</sup> <sup>310.5</sup> <sup>311.5</sup> <sup>312.5</sup> <sup>313.5</sup> <sup>314.5</sup> <sup>315.5</sup> <sup>316.5</sup> <sup>317.5</sup> <sup>318.5</sup> <sup>319.5</sup> <sup>320.5</sup> <sup>321.5</sup> <sup>322.5</sup> <sup>323.5</sup> <sup>324.5</sup> <sup>325.5</sup> <sup>326.5</sup> <sup>327.5</sup> <sup>328.5</sup> <sup>329.5</sup> <sup>330.5</sup> <sup>331.5</sup> <sup>332.5</sup> <sup>333.5</sup> <sup>334.5</sup> <sup>335.5</sup> <sup>336.5</sup> <sup>337.5</sup> <sup>338.5</sup> <sup>339.5</sup> <sup>340.5</sup> <sup>341.5</sup> <sup>342.5</sup> <sup>343.5</sup> <sup>344.5</sup> <sup>345.5</sup> <sup>346.5</sup> <sup>347.5</sup> <sup>348.5</sup> <sup>349.5</sup> <sup>350.5</sup> <sup>351.5</sup> <sup>352.5</sup> <sup>353.5</sup> <sup>354.5</sup> <sup>355.5</sup> <sup>356.5</sup> <sup>357.5</sup> <sup>358.5</sup> <sup>359.5</sup> <sup>360.5</sup> <sup>361.5</sup> <sup>362.5</sup> <sup>363.5</sup> <sup>364.5</sup> <sup>365.5</sup> <sup>366.5</sup> <sup>367.5</sup> <sup>368.5</sup> <sup>369.5</sup> <sup>370.5</sup> <sup>371.5</sup> <sup>372.5</sup> <sup>373.5</sup> <sup>374.5</sup> <sup>375.5</sup> <sup>376.5</sup> <sup>377.5</sup> <sup>378.5</sup> <sup>379.5</sup> <sup>380.5</sup> <sup>381.5</sup> <sup>382.5</sup> <sup>383.5</sup> <sup>384.5</sup> <sup>385.5</sup> <sup>386.5</sup> <sup>387.5</sup> <sup>388.5</sup> <sup>389.5</sup> <sup>390.5</sup> <sup>391.5</sup> <sup>392.5</sup> <sup>393.5</sup> <sup>394.5</sup> <sup>395.5</sup> <sup>396.5</sup> <sup>397.5</sup> <sup>398.5</sup> <sup>399.5</sup> <sup>400.5</sup> <sup>401.5</sup> <sup>402.5</sup> <sup>403.5</sup> <sup>404.5</sup> <sup>405.5</sup> <sup>406.5</sup> <sup>407.5</sup> <sup>408.5</sup> <sup>409.5</sup> <sup>410.5</sup> <sup>411.5</sup> <sup>412.5</sup> <sup>413.5</sup> <sup>414.5</sup> <sup>415.5</sup> <sup>416.5</sup> <sup>417.5</sup> <sup>418.5</sup> <sup>419.5</sup> <sup>420.5</sup> <sup>421.5</sup> <sup>422.5</sup> <sup>423.5</sup> <sup>424.5</sup> <sup>425.5</sup> <sup>426.5</sup> <sup>427.5</sup> <sup>428.5</sup> <sup>429.5</sup> <sup>430.5</sup> <sup>431.5</sup> <sup>432.5</sup> <sup>433.5</sup> <sup>434.5</sup> <sup>435.5</sup> <sup>436.5</sup> <sup>437.5</sup> <sup>438.5</sup> <sup>439.5</sup> <sup>440.5</sup> <sup>441.5</sup> <sup>442.5</sup> <sup>443.5</sup> <sup>444.5</sup> <sup>445.5</sup> <sup>446.5</sup> <sup>447.5</sup> <sup>448.5</sup> <sup>449.5</sup> <sup>450.5</sup> <sup>451.5</sup> <sup>452.5</sup> <sup>453.5</sup> <sup>454.5</sup> <sup>455.5</sup> <sup>456.5</sup> <sup>457.5</sup> <sup>458.5</sup> <sup>459.5</sup> <sup>460.5</sup> <sup>461.5</sup> <sup>462.5</sup> <sup>463.5</sup> <sup>464.5</sup> <sup>465.5</sup> <sup>466.5</sup> <sup>467.5</sup> <sup>468.5</sup> <sup>469.5</sup> <sup>470.5</sup> <sup>471.5</sup> <sup>472.5</sup> <sup>473.5</sup> <sup>474.5</sup> <sup>475.5</sup> <sup>476.5</sup> <sup>477.5</sup> <sup>478.5</sup> <sup>479.5</sup> <sup>480.5</sup> <sup>481.5</sup> <sup>482.5</sup> <sup>483.5</sup> <sup>484.5</sup> <sup>485.5</sup> <sup>486.5</sup> <sup>487.5</sup> <sup>488.5</sup> <sup>489.5</sup> <sup>490.5</sup> <sup>491.5</sup> <sup>492.5</sup> <sup>493.5</sup> <sup>494.5</sup> <sup>495.5</sup> <sup>496.5</sup> <sup>497.5</sup> <sup>498.5</sup> <sup>499.5</sup> <sup>500.5</sup> <sup>501.5</sup> <sup>502.5</sup> <sup>503.5</sup> <sup>504.5</sup> <sup>505.5</sup> <sup>506.5</sup> <sup>507.5</sup> <sup>508.5</sup> <sup>509.5</sup> <sup>510.5</sup> <sup>511.5</sup> <sup>512.5</sup> <sup>513.5</sup> <sup>514.5</sup> <sup>515.5</sup> <sup>516.5</sup> <sup>517.5</sup> <sup>518.5</sup> <sup>519.5</sup> <sup>520.5</sup> <sup>521.5</sup> <sup>522.5</sup> <sup>523.5</sup> <sup>524.5</sup> <sup>525.5</sup> <sup>526.5</sup> <sup>527.5</sup> <sup>528.5</sup> <sup>529.5</sup> <sup>530.5</sup> <sup>531.5</sup> <sup>532.5</sup> <sup>533.5</sup> <sup>534.5</sup> <sup>535.5</sup> <sup>536.5</sup> <sup>537.5</sup> <sup>538.5</sup> <sup>539.5</sup> <sup>540.5</sup> <sup>541.5</sup> <sup>542.5</sup> <sup>543.5</sup> <sup>544.5</sup> <sup>545.5</sup> <sup>546.5</sup> <sup>547.5</sup> <sup>548.5</sup> <sup>549.5</sup> <sup>550.5</sup> <sup>551.5</sup> <sup>552.5</sup> <sup>553.5</sup> <sup>554.5</sup> <sup>555.5</sup> <sup>556.5</sup> <sup>557.5</sup> <sup>558.5</sup> <sup>559.5</sup> <sup>560.5</sup> <sup>561.5</sup> <sup>562.5</sup> <sup>563.5</sup> <sup>564.5</sup> <sup>565.5</sup> <sup>566.5</sup> <sup>567.5</sup> <sup>568.5</sup> <sup>569.5</sup> <sup>570.5</sup> <sup>571.5</sup> <sup>572.5</sup> <sup>573.5</sup> <sup>574.5</sup> <sup>575.5</sup> <sup>576.5</sup> <sup>577.5</sup> <sup>578.5</sup> <sup>579.5</sup> <sup>580.5</sup> <sup>581.5</sup> <sup>582.5</sup> <sup>583.5</sup> <sup>584.5</sup> <sup>585.5</sup> <sup>586.5</sup> <sup>587.5</sup> <sup>588.5</sup> <sup>589.5</sup> <sup>590.5</sup> <sup>591.5</sup> <sup>592.5</sup> <sup>593.5</sup> <sup>594.5</sup> <sup>595.5</sup> <sup>596.5</sup> <sup>597.5</sup> <sup>598.5</sup> <sup>599.5</sup> <sup>600.5</sup> <sup>601.5</sup> <sup>602.5</sup> <sup>603.5</sup> <sup>604.5</sup> <sup>605.5</sup> <sup>606.5</sup> <sup>607.5</sup> <sup>608.5</sup> <sup>609.5</sup> <sup>610.5</sup> <sup>611.5</sup> <sup>612.5</sup> <sup>613.5</sup> <sup>614.5</sup> <sup>615.5</sup> <sup>616.5</sup> <sup>617.5</sup> <sup>618.5</sup> <sup>619.5</sup> <sup>620.5</sup> <sup>621.5</sup> <sup>622.5</sup> <sup>623.5</sup> <sup>624.5</sup> <sup>625.5</sup> <sup>626.5</sup> <sup>627.5</sup> <sup>628.5</sup> <sup>629.5</sup> <sup>630.5</sup> <sup>631.5</sup> <sup>632.5</sup> <sup>633.5</sup> <sup>634.5</sup> <sup>635.5</sup> <sup>636.5</sup> <sup>637.5</sup> <sup>638.5</sup> <sup>639.5</sup> <sup>640.5</sup> <sup>641.5</sup> <sup>642.5</sup> <sup>643.5</sup> <sup>644.5</sup> <sup>645.5</sup> <sup>646.5</sup> <sup>647.5</sup> <sup>648.5</sup> <sup>649.5</sup> <sup>650.5</sup> <sup>651.5</sup> <sup>652.5</sup> <sup>653.5</sup> <sup>654.5</sup> <sup>655.5</sup> <sup>656.5</sup> <sup>657.5</sup> <sup>658.5</sup> <sup>659.5</sup> <sup>660.5</sup> <sup>661.5</sup> <sup>662.5</sup> <sup>663.5</sup> <sup>664.5</sup> <sup>665.5</sup> <sup>666.5</sup> <sup>667.5</sup> <sup>668.5</sup> <sup>669.5</sup> <sup>670.5</sup> <sup>671.5</sup> <sup>672.5</sup> <sup>673.5</sup> <sup>674.5</sup> <sup>675.5</sup> <sup>676.5</sup> <sup>677.5</sup> <sup>678.5</sup> <sup>679.5</sup> <sup>680.5</sup> <sup>681.5</sup> <sup>682.5</sup> <sup>683.5</sup> <sup>684.5</sup> <sup>685.5</sup> <sup>686.5</sup> <sup>687.5</sup> <sup>688.5</sup> <sup>689.5</sup> <sup>690.5</sup> <sup>691.5</sup> <sup>692.5</sup> <sup>693.5</sup> <sup>694.5</sup> <sup>695.5</sup> <sup>696.5</sup> <sup>697.5</sup> <sup>698.5</sup> <sup>699.5</sup> <sup>700.5</sup> <sup>701.5</sup> <sup>702.5</sup> <sup>703.5</sup> <sup>704.5</sup> <sup>705.5</sup> <sup>706.5</sup> <sup>707.5</sup> <sup>708.5</sup> <sup>709.5</sup> <sup>710.5</sup> <sup>711.5</sup> <sup>712.5</sup> <sup>713.5</sup> <sup>714.5</sup> <sup>715.5</sup> <sup>716.5</sup> <sup>717.5</sup> <sup>718.5</sup> <sup>719.5</sup> <sup>720.5</sup> <sup>721.5</sup> <sup>722.5</sup> <sup>723.5</sup> <sup>724.5</sup> <sup>725.5</sup> <sup>726.5</sup> <sup>727.5</sup> <sup>728.5</sup> <sup>729.5</sup> <sup>730.5</sup> <sup>731.5</sup> <sup>732.5</sup> <sup>733.5</sup> <sup>734.5</sup> <sup>735.5</sup> <sup>736.5</sup> <sup>737.5</sup> <sup>738.5</sup> <sup>739.5</sup> <sup>740.5</sup> <sup>741.5</sup> <sup>742.5</sup> <sup>743.5</sup> <sup>744.5</sup> <sup>745.5</sup> <sup>746.5</sup> <sup>747.5</sup> <sup>748.5</sup> <sup>749.5</sup> <sup>750.5</sup> <sup>751.5</sup> <sup>752.5</sup> <sup>753.5</sup> <sup>754.5</sup> <sup>755.5</sup> <sup>756.5</sup> <sup>757.5</sup> <sup>758.5</sup> <sup>759.5</sup> <sup>760.5</sup> <sup>761.5</sup> <sup>762.5</sup> <sup>763.5</sup> <sup>764.5</sup> <sup>765.5</sup> <sup>766.5</sup> <sup>767.5</sup> <sup>768.5</sup> <sup>769.5</sup> <sup>770.5</sup> <sup>771.5</sup> <sup>772.5</sup> <sup>773.5</sup> <sup>774.5</sup> <sup>775.5</sup> <sup>776.5</sup> <sup>777.5</sup> <sup>778.5</sup> <sup>779.5</sup> <sup>780.5</sup> <sup>781.5</sup> <sup>782.5</sup> <sup>783.5</sup> <sup>784.5</sup> <sup>785.5</sup> <sup>786.5</sup> <sup>787.5</sup> <sup>788.5</sup> <sup>789.5</sup> <sup>790.5</sup> <sup>791.5</sup> <sup>792.5</sup> <sup>793.5</sup> <sup>794.5</sup> <sup>795.5</sup> <sup>796.5</sup> <sup>797.5</sup> <sup>798.5</sup> <sup>799.5</sup> <sup>800.5</sup> <sup>801.5</sup> <sup>802.5</sup> <sup>803.5</sup> <sup>804.5</sup> <sup>805.5</sup> <sup>806.5</sup> <sup>807.5</sup> <sup>808.5</sup> <sup>809.5</sup> <sup>810.5</sup> <sup>811.5</sup> <sup>812.5</sup> <sup>813.5</sup> <sup>814.5</sup> <sup>815.5</sup> <sup>816.5</sup> <sup>817.5</sup> <sup>818.5</sup> <sup>819.5</sup> <sup>820.5</sup> <sup>821.5</sup> <sup>822.5</sup> <sup>823.5</sup> <sup>824.5</sup> <sup>825.5</sup> <sup>826.5</sup> <sup>827.5</sup> <sup>828.5</sup> <sup>829.5</sup> <sup>830.5</sup> <sup>831.5</sup> <sup>832.5</sup> <sup>833.5</sup> <sup>834.5</sup> <sup>835.5</sup> <sup>836.5</sup> <sup>837.5</sup> <sup>838.5</sup> <sup>839.5</sup> <sup>840.5</sup> <sup>841.5</sup> <sup>842.5</sup> <sup>843.5</sup> <sup>844.5</sup> <sup>845.5</sup> <sup>846.5</sup> <sup>847.5</sup> <sup>848.5</sup> <sup>849.5</sup> <sup>850.5</sup> <sup>851.5</sup> <sup>852.5</sup> <sup>853.5</sup> <sup>854.5</sup> <sup>855.5</sup> <sup>856.5</sup> <sup>857.5</sup> <sup>858.5</sup> <sup>859.5</sup> <sup>860.5</sup> <sup>861.5</sup> <sup>862.5</sup> <sup>863.5</sup> <sup>864.5</sup> <sup>865.5</sup> <sup>866.5</sup> <sup>867.5</sup> <sup>868.5</sup> <sup>869.5</sup> <sup>870.5</sup> <sup>871.5</sup> <sup>872.5</sup> <sup>873.5</sup> <sup>874.5</sup> <sup>875.5</sup> <sup>876.5</sup> <sup>877.5</sup> <sup>878.5</sup> <sup>879.5</sup> <sup>880.5</sup> <sup>881.5</sup> <sup>882.5</sup> <sup>883.5</sup> <sup>884.5</sup> <sup>885.5</sup> <sup>886.5</sup> <sup>887.5</sup> <sup>888.5</sup> <sup>889.5</sup> <sup>890.5</sup> <sup>891.5</sup> <sup>892.5</sup> <sup>893.5</sup> <sup>894.5</sup> <sup>895.5</sup> <sup>896.5</sup> <sup>897.5</sup> <sup>898.5</sup> <sup>899.5</sup> <sup>900.5</sup> <sup>901.5</sup> <sup>902.5</sup> <sup>903.5</sup> <sup>904.5</sup> <sup>905.5</sup> <sup>906.5</sup> <sup>907.5</sup> <sup>908.5</sup> <sup>909.5</sup> <sup>910.5</sup> <sup>911.5</sup> <sup>912.5</sup> <sup>913.5</sup> <sup>914.5</sup> <sup>915.5</sup> <sup>916.5</sup> <sup>917.5</sup> <sup>918.5</sup> <sup>919.5</sup> <sup>920.5</sup> <sup>921.5</sup> <sup>922.5</sup> <sup>923.5</sup> <sup>924.5</sup> <sup>925.5</sup> <sup>926.5</sup> <sup>927.5</sup> <sup>928.5</sup> <sup>929.5</sup> <sup>930.5</sup> <sup>931.5</sup> <sup>932.5</sup> <sup>933.5</sup> <sup>934.5</sup> <sup>935.5</sup> <sup>936.5</sup> <sup>937.5</sup> <sup>938.5</sup> <sup>939.5</sup> 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<sup>998.5</sup> <sup>999.5</sup> <sup>1000.5</sup> <sup>1001.5</sup> <sup>1002.5</sup> <sup>1003.5</sup> <sup>1004.5</sup> <sup>1005.5</sup> <sup>1006.5</sup> <sup>1007.5</sup> <sup>1008.5</sup> <sup>1009.5</sup> <sup>1010.5</sup> <sup>1011.5</sup> <sup>1012.5</sup> <sup>1013.5</sup> <sup>1014.5</sup> <sup>1015.5</sup> <sup>1016.5</sup> <sup>1017.5</sup> <sup>1018.5</sup> <sup>1019.5</sup> <sup>1020.5</sup> <sup>1021.5</sup> <sup>1022.5</sup> <sup>1023.5</sup> <sup>1024.5</sup> <sup>1025.5</sup> <sup>1026.5</sup> <sup>1027.5</sup> <sup>1028.5</sup> <sup>1029.5</sup> <sup>1030.5</sup> <sup>1031.5</sup> <sup>1032.5</sup> <sup>1033.5</sup> <sup>1034.5</sup> <sup>1035.5</sup> <sup>1036.5</sup> <sup>1037.5</sup> <sup>1038.5</sup> <sup>1039.5</sup> <sup>1040.5</sup> <sup>1041</sup>



126  
 Unquestionable, as happens so frequently both in  
 Hymenoptera & Diptera & to a less degree in Cole-  
 optera. Just in the same way the close concho-  
 logists have based their systematic distinctions  
 almost exclusively upon the characters of the  
 shell, neglecting or undervaluing the characters  
 of the other parts of the animal; whereas  
 if it had so happened that the shell of a mollusk  
 was perishable & the other parts of its body  
 easily preserved, instead of vice-versa, then I  
 have no doubt, they w<sup>d</sup> have neglected & undervalued  
 characters drawn from the shell & laid the chief  
 stress on those drawn from the other parts of the body.

Sept. 6 - Examined 22 D. 10-lucala on egg plant.  
 All had two stipes and sutural confluent  
 behind, except 2 which on one elytron  
 only had them non-confluent.

Constant characters in D. & D. 10-lucala

1. Shape of abdomen, whether ovate or subquadrate  
 but 2 abd. more robust than 1 (sufficiently)
2. Color of wings, fuscous or hyaline
3. Radiation of antennae (but not so in D. 10-lucala)
4. Coloration of legs (but variable in D. 10-lucala)
5. 3 of 8 ant. are annulate, & are so too in D. 10-lucala p. 58.

In Cage No. 6 a green cerise? larva, 1 1/2 inch  
 long, two 7 in place of anal prolegs, a whitish  
 narrow dorsal vitta, & oblique whitish  
 lateral lines like a Sphinx. [Sept. 12 in cage  
 March.]  
 Sept. 8 Found a g. erinacei full as smooth  
 as a strawberry, between two normal ones  
 on the same rib-dia, the 3 contiguous.  
 [Cypripedium] White like g. pilula & a whitish hair  
 from each.

Conducted my experiments carefully & conscientiously.

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Barley found in north  
of "Cutting and" of Texas

(Myrica Texana)

along with other tannaceous  
substances.

Q 205 - 42 - 9. Sc. 1260

p 233



174  
Inguishable, as happens so frequently both in  
Hymenoptera & Diptera & to a less degree in Cole-  
optera. Just in the same way the closet-concho-  
logists have based their systematic distinctions  
almost exclusively upon the characters of the  
shell, neglecting or undervaluing the characters  
of the other parts of the animal; whereas  
if it had so happened that the shell of a mollusk  
was perishable & the other parts of its body  
carefully preserved, instead of vice-versa, then I  
have no doubt, they wd. have neglected & undervalued  
characters drawn from the shell & laid the chief  
stress on those drawn from the other parts of the body.

Sept 6 - Examined 22 D. 10-lacata on egg plant.  
All had two stripes not sutural confluent  
behind, except 2 which on one elytron  
only had them non-confluent.

Constant characters in D. & Lachnus

1. Shape of abdomen, whether ovate or subcylindrical  
but ♀ abd. more robust than ♂ (sufficiently)
2. Color of wings, fuscous or hyaline.
3. Basal setae of antennae (but not so in D. maculipes)
4. Coloration of legs (but variable in D. genivittata)
5. If ♂ ant. are annulate, ♀ are so too (e.g. D. pallipes).

In Cage No 6 a green cerum? larva,  $1\frac{1}{2}$  inch  
long, two  $\pi$  in place of anal proleg, a whitish  
narrow dorsal vitta, & oblique whitish  
lateral lines like a Yphina. [Sept 12 in cage  
found.]  
Sept. 8 Found a g. oryzae full as small  
as a strawberry, between two normal ones  
on the same rib-vein, the 3 contiguous.  
[greenish] White like g. pulchra & a whitish hair  
from each.

Conducted my experiments carefully & conscientiously.  
~~Non-flora puncta of 10-lacata~~  
~~1st stripe (anterior) on middle of 6th rib & on 7th~~  
~~2nd. Thor. spots &~~  
~~✓ 3rd. Elytr. stripes bordered by regular rows of~~  
~~large punctures & irregularly dotted with~~  
~~✓ 4th. 2 submarginal stripes confluent behind &~~  
~~2 subventral stripes~~

Sept 17 many cypselid larvae now in g. podagrace, 1st  
death, from 2nd abd. shortish, not Syrphid. In  
they not April ♀ c.g. podagrace? 2 examined were 47.

Sept 18 - Found a dead  $1\frac{1}{2}$  inch Dryocampa  
on floor outside Cage - Must be an escaped  
breeder. Horns on 2 very plain.  
Sept 24 Three Conomophora from Black Knot.



179  
Oct 27 Cut an apterous *Gynops* (*G. polygonatorides*) out of *L. eriantheae* along with much frass.

Oct 2 Found in *S. gemma*, 2 *Chalcid* - 20-footed larva. <sup>1.5 long</sup> 12 long, greenish white, head tinged with dusky & the usual purplish eye-spots - mouth dusky. Had a <sup>small</sup> *Chalcid*? larva. 15 long, head with dusky & with a few hairs on fore-part of body. Inside of gall a green, fleshy matter. A few galls already bored.

Oct 3 Found in one "*pseudoclerice*" from "Cass's field" a cyprip. larva fresh & fresh looking.

Oct 11 opened all *G. praeus* galls of last year.

Found 1 larva (large, cyprip.) living, numerous mandibles  $11/11/11/11$  <sup>5 + 22</sup> 2 of them <sup>2 of them</sup> apparently dead but fresh.  $11/11/11/11$  (imagos) living of *C. G. praeus* (<sup>142</sup> 142 <sup>marked</sup> marked).

11 small *Chalcid* larva; 5 sub branches of *Chalcid*? larva.

Preserved in alcohol <sup>gynops together</sup> 2 small *Gynops* larvae + 12 large *Chalcid*. <sup>the same</sup> 1 cyprip. larva.

35 No pupa found in galls.

Oct 11. Of 61 *G. praeus* galls opened (exclusive of those which had central cell bored) 32 contained balls of *Chalcid*? larva, 26 empty or unrecognizable matter, 2 dead & dry *C. G. praeus* imago broken up, & 1 a cypripidom? larva, <sup>alive & moving</sup> alive & moving.

4 *Pseudoclerice* galls contained each contained

a cyprip. larva, one of them very lively. 179  
There were also a few pseudoclerice galls empty.

Oct 14 *Salix purpurea*. About  $\frac{1}{4}$  or  $\frac{1}{5}$  now have a slightly rosy cheek. Found 4 *Sal. pomum* on *S. discolor* in company with *S. purpurea*, all empty & bored.

Found several *Sal verruca* on *S. discolor* Larva in <sup>three long (oblong) orange</sup> <sup>black</sup> *Salix purpurea* with <sup>whisper</sup> <sup>marked</sup> as usual. *Chalcid* <sup>black</sup> .08 long,  $2\frac{1}{2}$  - 3 times as long as <sup>wide</sup> <sup>flattened</sup>, head large.

On leaves on *S. cordata* found numerous galls analogous to *S. praeus*. No larva in them, except perhaps in one. <sup>was looking for</sup> <sup>see p. 190</sup> *monothalpus* <sup>caducus</sup> <sup>see p. 190</sup>

Oct 15 *G. praeus* <sup>caducus</sup> Branches of 1-15, globular, dull <sup>opaque</sup> <sup>subscabrous</sup> <sup>fleshy</sup> galls growing from the midrib of the leaf on the under side. Diameter .06 - .20 inch, sometimes comprising each other a little as in *G. praeus*. Larva mostly inactive but in one quite large & wall of gall only about  $\frac{1}{5}$  or  $\frac{1}{6}$  of thickness. 2 at base often.

Found one *G. praeus* on hawthorn, & 2 others closely resembling it. <sup>but more woody</sup> <sup>preserved</sup> <sup>fruit</sup> had been gnawed by dep.? & perhaps wool gnawed off.

The tree (supposed red oak) on which I found supposed *G. punctata* gall is a black oak, from leaves & twigs.



Neorhombus cornu (4)  
 111 + aciculata (living)  
 / empty (cell eaten away)

1 Drift  
111 bunch of Chalced.  
1 no coll, (small & thin)

\* Oct. 16. Placed these on an isolated Black Oak (on the Trunk) close to Jones's North place, a few panels from N E corner  
+ Oct. 16. Placed them on isolated BL Oak at the SW corner of a track of Dicks farthest North from the Sycamore N W of old graveyard.

Oct 31. The Decatoma? (spotted wings) seem to  
have just come out from g. podagrace.  
Up to yesterday more or less every day.  
Nov. 5 cut open one pseudoskull. Salt from tree  
in Case's field inoculated with a cicada. Contained  
the living larva, evidently cyprinidous.

Put of 21 remaining Sp. of. galls 14 acc  
 had come out, all nicely - Day out of the week  
 3 nicely acc. + 1 Callanone (very pretty)  
 Placed the 7 on (Day sunny & pleasant but  
 nights now frosty) wind NW (moderate) a tree  
 A, one of a group of 4 in Kew Gardens  
 Section full on brow of hill NW of Park.  
 Three put on W-bough, 2 on trunk & 2 fell  
 on grass under W. boughs.



Nov 10. The *Tomicus*? still in larva state under  
the bark of dead's block.

Nov 15. Opened about 30 fresh *Spongifica* galls.  
Found one *lucy acculata* & 1 dead one.  
Also many bunches of Chalced. larva, &  
one large hairy Callimene? larva.

These the *lucy acc.* on the S. tree (bark)  
of the *Chalced.* - the group N. of Sand pete.  
That it fell on galls under the leaf bark.

Nov 16. Recd from Peck specimens of *S. confinis*  
on *S. ruga* from G. W. Chubb, Buff. N. Y.

Dec 17. Gathered over 100 <sup>150</sup> *Spongifica* galls, all but  
about 20 bored. Of these 20 all but 2 were  
abortive; in 1 of the 2 found dried & broken remains  
of an *acculata* imago & in same cell at full grown  
hairy Chalced. larva, probably the usual Callimene.  
In the other found the same larva, solitary.

The S.E. 20 rods on the N.E. corner of Slaughter  
house as full of these galls as an ordinary apple  
tree of apples.

Glover, Entomologist of Agr. Dep<sup>t</sup> at Washington, (p. 561)  
called on to do hosts of things besides entomology.  
This is like hiring a wimple cradler to cut 10000  
acres of wheat, & then expecting him, in addition  
to cut & fetch in wood, peel & wash the potatoes, &  
& be always on hand ready to wait on the  
good woman of the house.

On inherited mutilation & inherited  
obsolescence. <sup>from a case of mimicry in the dragonfly</sup>  
By Benj. D. Walsh

disappears ~~very~~ common, ursula rather rare.  
Kirkpatrick III. p. 329

artemis very rare, disappears <sup>very</sup> common ~~rather~~  
ursula rare III. pp. 62-4

"P. Polydamas is found all over Tropical America. I  
have had it from Honduras & Brazil" (Edwards ms.)

"P. Calverleyi Grote is a suffused *Atlenas*" (Edw. ms.)

"One of the collectors that came out with me [to Va] last  
summer reported seeing a big dragon-fly pounce  
upon Glancus & carry him away as a hawk  
does its prey. I have heard from another collector  
of a similar case that he saw." (Edw. m.s.)

The much greater tendency of the Southern birds,  
or those belonging to the cotton regions, to go  
northward in the Mississippi Valley than along  
the Atlantic slope is explained not only by the  
absence there of the isothermal lines, but by the  
absence of any such obstacle to their journey  
as is furnished by the Appalachian range.

\*\*\*  
We have *Ania*, *Sepidosteus*, *Micropterus*,  
~~*Crypter*~~ (*Crypter*) & various other forms of  
fishes throughout the Mississippi Valley as far  
North as the Great Lakes, while in the Atlantic  
slope they do not pass the James or lower Potomac  
except as stragglers. Baird Ill Journ. XI. p. 87







—Astronomers have discovered that the moon is drawing gradually nearer to the earth, by about an inch every year. They have also discovered that the day is about one hundredth of a second longer now than it was two thousand years ago.

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that country, particularly between New Orleans and Vicksburg, or between New Orleans and Jackson.

Wm. F. Downs made a trip down the Mississippi, and across the country, to Atlanta in December, as revenue agent of the Treasury. He found the people generally bitter in their apposition to the Government.

Brevet Brig. Gen. Jno. Torbett, after being mustered out of the army, purchased a plantation in Scott county, Mississippi, and travelled through the State generally. He thinks the planters and the



1844 March 29. 1886. *Prothomus* ...  
 ... *Prothomus* ...  
 ... March 29. 1886.

Apr. 8. 1886. New Cedar ...  
 ...  
 ... flat ...

Apr. 12. 1886. *Prothomus* ...

140. 12. 602 ♀ — (all 7 blackish brown)

— 15 — 9 ♀ — (all) —

— 18 — 17 ♀ — (all 15 —)

Apr. 19. 7 ♀ (all in blackish brown)

— 20 — 1 ♀ — (all 15 —)

— 21 — 1 ♀ — (all 15 —)

— 22 — 1 ♀ — (all 15 —)

— 23 — 1 ♀ — (all 15 —)

— 24 — 1 ♀ — (all 15 —)

— 25 — 1 ♀ — (all 15 —)

— 26 — 1 ♀ — (all 15 —)

— 27 — 1 ♀ — (all 15 —)

— 28 — 1 ♀ — (all 15 —)

— 29 — 1 ♀ — (all 15 —)

— 30 — 1 ♀ — (all 15 —)

— 31 — 1 ♀ — (all 15 —)

— 32 — 1 ♀ — (all 15 —)

— 33 — 1 ♀ — (all 15 —)

— 34 — 1 ♀ — (all 15 —)

— 35 — 1 ♀ — (all 15 —)

— 36 — 1 ♀ — (all 15 —)

Chic. Republic  
 April 17. 86

Apr. 18. *Prothomus* ...

Apr. 21. 24 ♀, 12 with abd. ...

Apr. 22. 190 ♀, many abd. ...

Apr. 23. 114 ♀ ...

Apr. 24. 175 — 200 ♀♀ taken to field, ...

Apr. 25. 53 ...

Apr. 26. 35 ♀ —

Apr. 27. 14 ♀ —

Apr. 28. 6 ♀ —

Apr. 29. 34

Apr. 30. 190

May 1. 114

May 2. 53

May 3. 35

May 4. 26

May 5. 26

May 6. 26

May 7. 26

May 8. 26

May 9. 26

May 10. 26

May 11. 26

May 12. 26

May 13. 26

May 14. 26

May 15. 26

May 16. 26

May 17. 26

May 18. 26



Apr. 22 Placed about 100 ♀ eggs of *Podiceps* on a smallish Black Oak, bifid near the base, South of the 'riverside road' beyond Paper mill; 2nd tree beyond the 1st lawn & about 50 yds. W. of a large Thorn on the sand-beach.

Also about 70 or 80 g on another *Bh oak* tree, 2  
near base S. of same road & opposite the 2<sup>d</sup>.  
Sycamore on the sand-beach. (same loc.)

Sycamore on the sand-beach. { *Singularis*  
Apr. 24 opened 8 last year C. g. { *multispinis* Sall.  
6 were empty or = 0 ; 1 a dead Callinome ;  
1 a plump & healthy looking cyrpedous larva,  
which I wrapped in a piece of paper & replaced  
in the bottle.

Apr. 27 *Nematodes* & *Psidium* came out. Out of about  
50 galls all but 3 plump & a few shrivelled  
ones bored, empty & full of frass. ∴ Larva  
went under sand bottom of jar.

• Cut open one g. prunus gall of those that contained larva last fall. Larva still there & apparently alive, but cut it in opening gall.

Noticed in the Rabbit cutelebra jar a large round hole bored thro the Jar to the surface. Insect preparing to come out.

Dagupan Garden 2 *Arceuthobium lanigera*

New Cedar <sup>fruits</sup> ~~galls~~ have now put forth their filaments,  
which are covered with ferruginous dust = spores  
& are about  $\frac{1}{8}$  inch long, & 5 times as long as wide,  
cylindrical but slightly tapered.

May 9. *Thyrens Abollii* ♂ came out from  
larva supposed to be that of Nespa. Specimen  
larva in alcohol.

May 10. Bred Leptis thoracica from white larva  
found in garden-mould (preserved one in alcohol)  
Eleven-jointed, anus truncate  $\Sigma$  (profile) W (above)  
Head much as in Tabanus.

May 11. Elm Town?

(from clear) now in  
pupa state. In larva  
all a few weeks ago.

*Will Rabbits Eat Flesh?*—A FARMER'S BOY, who writes from Cornwall, Vt., says rabbits will eat lean flesh greedily, and sometimes they will eat fat, which is generally fatal to them. Hence greasing trees prevents rabbits from gnawing them. The best preventive, however, in a country where white birch abounds, is to roll strips of birch-bark around the apple-trees in Autumn. It should be removed in Spring and laid away for future use. This bark is a complete shield against mice or rabbits, as no animal will eat it.

May 15. New cedar fungus, have now filaments 4 or 5 inch long, ferruginous, 7 or 8 times as long as wide & somewhat tapered. Some had now fallen off, leaving depressed round scars.

May 17. <sup>above</sup> ~~Ad. Microtus~~ <sup>above</sup> ~~see~~ <sup>above</sup> ~~fall~~ <sup>above</sup> ~~Wagon~~ <sup>above</sup> ~~Chick~~  
 May 20 <sup>above</sup> ~~young~~ <sup>above</sup> ~~system~~ <sup>above</sup> ~~2~~  
 June 12 <sup>above</sup> ~~Chickadee~~ <sup>above</sup> ~~5-fanckle~~ <sup>above</sup> ~~under~~ <sup>above</sup> ~~bird~~  
 June 17 <sup>above</sup> ~~ad.~~ <sup>above</sup> ~~cap~~ <sup>above</sup> ~~of~~ <sup>above</sup> ~~Cherry~~ <sup>above</sup> ~~white~~ <sup>above</sup> ~~larva~~  
 X <sup>above</sup> ~~Chickadee~~ <sup>above</sup> ~~1~~ <sup>above</sup> ~~of~~ <sup>above</sup> ~~Wagon~~ <sup>above</sup> ~~2~~ <sup>above</sup> ~~sp.~~ <sup>above</sup> ~~2-2~~ <sup>above</sup> ~~3~~ <sup>above</sup> ~~smaller~~ <sup>above</sup> ~~12~~ <sup>above</sup> ~~of~~ <sup>above</sup> ~~black~~  
 June 12 <sup>above</sup> ~~1/2~~ <sup>above</sup> ~~Black~~ <sup>above</sup> ~~prosp~~ [threw away]



May 20. Brod<sup>43</sup> Lo - 30 *Magdalenus armicollis*,  
from subcortical larvae which had destroyed  
a young elm for Mr. Veas. All red elytra &  
black thorax to most of them; a few red thorax.

May 19. Took at 30 *Donacia confusa*. All elytra metallic  
brown or indigo blue, which last <sup>blue grey</sup> smaller & <sup>or</sup> ~~smaller~~ <sup>88?</sup>

May 20. In Cedar fungus terminal  $\frac{1}{2}$  of filaments had  
now withered up & shed their ferruginous spores. Red  
ferruginous still.

When larvae first come out from pupae, the  
larvae are broken up & they are very small, which  
afterwards get off.

May 31 Gathered off "Jones' place tree" 5 spang.  
galls, 4 badly eaten. put twigs in water; 1  
not eaten, but off twig in paper. All very  
young.

Saw on "Pasture-field tree" 1 spang. gall tip  
of N.E. bough.

*Chalcid* *Conoclinium* *Chalcid* *Chalcid*

June 10. Many spang. galls on "Jones' place tree"  
examined on each year. One contained 1 young  
pupa.

June 10. 1 distinct 2nd body eaten) *Chalcid* *Chalcid*  
on "Jones' place tree" *Chalcid* *Chalcid*

June 10. 19 *Spang.* *Chalcid* *Chalcid*

June 17. Came out a second of *Spang.* *Chalcid* from  
"Jones' place tree" galls.

June 17. Examined "Jones' place tree" galls. 12 galls  
examined. 11 fresh. 11 very white & well up.

June 17. Examined "Jones' place tree" galls. 12 galls  
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examined. 11 fresh. 11 very white & well up.

July 6. Found among my *g. fragaria* galls (Burr  
Oak) a leaf which had evidently borne 2.  
*Caducus* p. 179. i.e. that grows on Burr oak.  
Of 2. *fragaria* found 6 bored, with a large  
hole which much have produced a  
*Synnergus* bred today (found dead) & 5  
with small holes which much have  
been bored when galls were gathered  
by P. *seaside*?

(bred from it a *Scaph.*  
*Hatched* moth, *proctos.* *ant.*)

July 8. Found a case attached to oak leaf composed of  
little pieces of stems (Phryganea fashion). Larva pale  
chestnut, legless, head + 12 j., 1 short, 2 - 8 bearing  
spiracles, 3 last distinctly none. Length .35 inch  
Case .70 inch. Preserved in alcohol & case dried.  
*Prophora* larva, according to Harris, has legs. Case more  
very solidly by silk, & with inside. Found another after



191 July 17. Gall *vitifoliae*? Fitch abundant on wild grape N.E. corner of Jones' field. *Contatus* now, but mother louse, about equal quantities of eggs & young larvae just hatched. Galls now about 10 not decayed, pale green, uneven & supplied with a few hairs. Mother-louse alone, a coccus, with distinctly 1-5<sup>th</sup> larva: ant. very short. Prody, yellow, round; .03 in diameter. Ant. Hairs obscured. Head (at tip) black. Same gall, rather larger, on cluster grape: rest all the same. No woolly mother among eggs & young larvae.

Gall *Crataegi glauca* - n.s.p. A fusiform pale green fold on lower surface of leaves of *Crataegus* *crus-galli*, opening above by a slit, & always generally on one of chief side-veins, <sup>or on middle</sup> 1-7 on a leaf. Length .35-.50, diam .10-.15 inch. Walls thin & hard; inside polished. Larva single, cecid<sup>s</sup>, sanguineous, with distinct black breast bone, & now .02 long. <sup>July 24. 2 dead. yellow eggs; no dust.</sup> always on lower side of leaf & very abundant, a white woolly spot on corresponding place in leaf above. <sup>gall larvae - similar</sup> <sup>very minute</sup> <sup>.06-.30 in diameter</sup> <sup>Coccid. spec.</sup> <sup>yellowish</sup> <sup>with an opening as in *Caryophyllae*. Much</sup> <sup>yellow above, pale green below. The open central nipple whitish. Often a hundred on one leaflets</sup>

July 17. A gall like *holotricha* o.s. on upper side of leaf of *Carya alba*; larva coccid. with close breasting hyaline. <sup>large discoloring</sup> <sup>black internal spot</sup> <sup>along a central filament, converging from o.</sup> <sup>no larva</sup> <sup>woolly</sup> <sup>no larvae</sup>

Band (Sill. Journ. May 1886 pp. 337-347) proves that "European birds, especially the land species, reach Greenland by way of Iceland, & N.A. by continued by natural movements from Greenland". North Am. birds reach Europe (especially England & Heligoland) by direct course from about latitude 45°. The resultant motion of <sup>surface</sup> wind between 32° & 58° in N.A. is from the west.

Iceland is in the latitude of the reverse current from east to west. 7.407 of ditto 13 bladders are exposed in geological sketches by L. Agassiz. [by Prof. Dana?] <sup>July 17. Found many</sup> <sup>fusiform galls</sup> <sup>similar to those</sup> <sup>on wild cherry on upper face of leaves of White Elm.</sup> <sup>Found many ditto</sup> <sup>on alder on upper face</sup> <sup>of leaves of Soft Maple. Epiphytous fungus?</sup> <sup>Found in two specimens found 10-20 hyaline young</sup> <sup>cocci? & in one, what seemed a much larger one</sup> <sup>with longish antennae, but lost it.</sup> <sup>*Caryophyllae* Fitch 'is Coccid. not Aphedra.</sup> <sup>He opened contained 4 empty, & 25 long, & many minute</sup>



19<sup>th</sup> <sup>egg</sup> No powdery dust. On *Carya alba*? Yes.  
Gall *Cornu tuba* Walsb. <sup>usually doubly armed</sup> A curved, pale green & sub-  
cylindrical gall slightly tapered toward tip when  
it is squarely truncate with a slightly flaring  
tuberculated surface, as if broken off then,  
1/2 inch long & .10 inch in radial diameter,  
hard but fleshy, externally subopaque with  
some fine white pubescence, internally ~~with~~  
solid except a cell close to its base containing <sup>small</sup> whitish  
Cecid. larva with close b.b. Three galls  
together on lower surface of leaf; a  
wrinkled space opposite each on upper surface.  
On *Cornus*, <sup>red ovary</sup> 1-6 on a leaf.

Cecid. vein-gall (with bristled leaves fraying old,  
on upper edge of gall) on *Crataegus tomentosa* (not *C. oxy-*  
*galli*) Larva b.b. Y-shaped subround. (p. 191)  
= *Crataegi limbus*. Differs from *C. plicata* in being  
densely covered below with white pubescence  
& in the slit above being frayed with a  
crumpled narrow bastard leaf. Noticed  
1 or 2 young *coccin.*? crawling about among the  
freshly opened galls. Inquisitive? So in *Maple*  
*Epiphyas fumus*, p. 191.  
Noticed ants tending *Acutalis* (large) a. sp. on  
*Amorpha fruticosa*? on R.R. bottoms, as they  
do *Eucophyllum binotatum*.

July 19<sup>th</sup> <sup>(see p. 206)</sup> *Aceris localis* <sup>large, dark, fuzzy fungus</sup> on upper face of leaf 19<sup>th</sup>  
of Soft Maple. <sup>Acorn</sup> In irregularly oval, <sup>conical</sup> rugose,  
but not pilose or pubescent, hollow, pale green,  
fleshy gall with thin walls & the interior walls  
rough with dark, mealy looking ~~and~~ branching excres-  
cences. Inside flowers of very minute oval pollen  
cells & occasionally a larger one with long anthers  
& stamens, all very vigorous. No powdery dust as yet.  
In 12 out of 20 galls (with a short robust peduncle &  
found the *Epiphyas* & in one, when cut open, there  
was a minute chalcid. Another was bored (by  
Chalcid?) but empty. A mark but no slit on  
corresponding part of leaf below. Length about .30.  
*Gall crataegi globularis* n. On June 12, 1868, galls  
(on ~~different~~ *Crataegi*) by being <sup>examined</sup> examined. Contain 1 to  
below, length .38 - .45 10<sup>th</sup> larvae, in company;  
No fringe above. On <sup>largest</sup> .16 long; tail .05.  
from *C. limbus* in having no fringe. July 18  
mostly dried up, & those still green were  
empty, but are no doubt Cecid. Many  
bored by parasites. [June 17, 1867] <sup>mostly</sup> empty; inside smooth  
with 1/5 diameter of gall. The gall  
*Gall Crataegi bedeguar* (Cecid. larva orange with  
Y-shaped bractstone) On the main rib, generally  
below, sometimes above, a gall branching out  
into long slender branching filaments <sup>which fan</sup> often with rosy, the whole subglobular  
& about .50 in diameter. Like *roze bedeguar*  
on *Crataegus tomentosa* very Rare [on Island?]  
contained hyaline-whitish larva .10 long, <sup>infers</sup> stem very thin



On June 12, 1868, galls  
counted. Column 1 to  
10 ~~10~~ Larvae, in company;  
largest .16 long; Tail w.  
Bl as in J.



193<sup>1</sup> <sup>egg</sup> No powdery dust. On *Carya alba*? Yes.  
Gall *Cornu tuba* Walsb. <sup>more at first generally doubly armed</sup> A curved, pale green <sup>or purple</sup> sub-  
cylindrical gall slightly tapered toward tip when  
it is squarely truncate with a slightly flaring  
tuberculated surface, as if broken off then,  
1/2 inch long & .10 inch in radial diameter,  
hard but fleshy, externally subopaque with  
some fine white pubescence, internally ~~with~~  
<sup>solid except</sup> a cell close to its base containing <sup>small</sup> whitish  
Cecid. larva with close b.b. Three galls  
together on lower surface of leaf; a  
wrinkled space opposite each on upper surface.  
On *Cornus*, <sup>red ovary</sup> 1-6 on a leaf.

Cecid. vein-gall (with bristly leaves mapping old,  
on upper edge of gall) on *Crataegus tomentosa* (not *Cornus*  
galls) Larva b.b. Y-shaped subround.

= *Crataegi limbus*. Differs from *C. plicata* in being  
densely covered below with white pubescence  
& in the slit above being fringed with a  
crumpled narrow bastard leaf. Noticed  
1 or 2 young *coccus*? Crawling about among the  
freshly opened galls. Inquisitive? So in Maple  
*Epiphyas fumus*, p. 191?

Noticed ants tending *Acutalis* (large) n. sp. on  
*Amorpha fruticosa*? or *R. R.* bottom, as they  
do *Eucophyllum binotatum*.


July 19. <sup>(p. 206)</sup> *Aceris* <sup>on 2nd year of maple</sup> *loculus* <sup>gall on upper face of leaf</sup> 193<sup>1</sup>  
of Soft Maple. <sup>Acronyrium</sup> An irregularly oval, <sup>coarsely</sup> rugose,  
but not pilose or pubescent, hollow, pale green,  
fleshy gall with thin walls & the interior walls  
rough with dark mealy looking ~~tr~~ branching excres-  
cences. Inside <sup>from or highest part of</sup> flowers of very minute oval pedicel-  
lice & occasionally a larger one with long antennae  
stems, all very vigorous. No powdery dust as yet.  
In 12 out of <sup>20</sup> galls (with a short robust peduncle &  
found the *Epiphyas* in one, when cut open, there  
was a minute Chalcid. Another was bored (by  
Chalcid?) but empty. A mark but no slit on  
corresponding part of leaf below. Length about .20 inch.

Gall *Crataegi globularis* n. sp. differs from *C. plicata*  
(on ~~different~~ <sup>different</sup> ~~the~~ <sup>the</sup> ~~same~~ <sup>same</sup> ~~tree~~ <sup>tree</sup>) by being subglobular, woolly  
below, length .38 - .45 inch, diam. .20 - .37 inch.  
No fringe above. On *Crataegus tomentosa*. Differs  
from *C. limbus* in having no fringe. July 18  
mostly dried up, & those still green were  
empty, but are no doubt Cecid. Many  
bored by parasites. [June 17. 1867, mostly empty; inside smooth  
with 1/5 diameter of gall. The gall.]

Gall *Crataegi bedeguar* (Cecid. larva oblong with  
Y-shaped breastbone) On the main rib, generally  
below, sometimes above, a gall branching  
into long slender branching filaments, <sup>which fan</sup> often with rosy, the whole subglobular  
& about .50 in diameter. Like rose bedeguar  
on *Crataegus tomentosa*. Very Rare [on Island?]  
contained hyaline-whitish larva .10 long, <sup>very</sup> stem very thin.



— cr. verrucular { aph. " "  
                                  { coccid. " }

only on 1 leaflet, a very minute *Nyaline Aphid*.  
 many about in each. (Aug 5. pale green outside. <sup>with white dots</sup> opening on  
 one side, or up below with a  slit. No larva. Gut coarsely



196 Uran ~~crucians~~ <sup>crucians</sup> ~~pinus~~ on true white Elm R.R. bottom. July 20.  
An irregularly oval, <sup>or trifoliate</sup> pale green, gall on the upper face  
of leaf, 1-8 on a leaf, with a short robust peduncle  
springing <sup>often but not always</sup> from midrib or one of principal veins,  
with a few white <sup>opposite sides at small pubescent spots</sup> hairs. Inside with dense filaments,  
clavate at base radiating from the thin internal-  
shell & some of them white & <sup>of them occasionally</sup> pink. Opened 10  
I found no living insect. Very like *Acetia* *locularis*.  
Length .25 Under. (Inside wall of gall rarely crimson.)

Rhois ~~stomat~~ <sup>stomat</sup> July 20 - on Rhus typhina <sup>Staphorn Sumach</sup> - grows  
from the midrib of leaflet, rarely from one of  
leaflets, 1-3 on a leaf, pyriform, small  
green & downy now. Largest about

Wm Colden

Probably = O.S. No. 23

*Antrodia cordifolia*  
legua (on one in yard). A smooth, green  
val <sup>or fissiform</sup> ~~scutellum~~ of the leaf: stalk, ~~small~~ <sup>small</sup>  
the leaf, rarely on the <sup>small</sup> ~~very~~ bearing the leaf  
my, .20 - .30 in diameter. Polychlorous  
red. ~~late~~ greenish hyaline <sup>with green spots</sup> ~~with green spots~~  
some black dots. †

Lula. [Noticed 1 afternoon vigorously eating as  
opened green gall.] An irregularly round on  
the pale green gall, beset by the plant  
not confined to veins, flattened above  
& generally tinged with rosy on the O

above & below, both surfaces coarsely reticulate  
& with 4 or 5 stria radiating from <sup>a small</sup> central  
depression. Mostly now burst open below  
(like *g. pulula*) & the cap of the gall fallen  
off leaving only a rough brown surface.  
○ the upper surface entire but changed to  
a deep blood-red color. Found 1 cecid. larva  
- <sup>robby</sup> <sup>short</sup> & <sup>very</sup> <sup>small</sup> 3 or 4 collembone & 1 or 2 other  
chalcid. in green galls, one in each. i.  
monothalamous. 1-20 on a leaf, 2 or 3  
often confluent. diam. gall .13 - .30 inch.

Gall thor. vena, a simple enlargement of a  
mam-ven. .20 long & containing 1 elongate white  
cecid. larva, breastbone .. .10 inch long.

\* *Telma loculus* - epiphytous fungus - like *Acron*  
*loculus* - no larvae in it. 1 specimen

Jaecandis caulis (Black Walnut) a solid fleshy  
(oral irregularly) subseftiles, Stollen .35— .42 in  
diameter <sup>clipping the</sup> leaf stalk or midrib of compound leaf. 8881  
Internally grass green, ex-  
ternally except near leaf stalk with a dense of  
reddish brown woolly-pubescent surface like that of Jaecandis.  
No larva, but indistinct incipient cells? not on leaf.  
Cecid? gall? many specimens

— Inglanthon tocalus. on Rh. Walnut. Much like aceni  
tocalus; inside white woolly fibres. No sweets.  
Epiphytous fungus? On upper face of leaflet.

Cratogeomys vermiculatus. on Cr. tomentosa July 23; = Hal  
on Cr. crassipalli; larvae the same. variegated  
July 25



+ Gull on twig April 26 woody, with a  
long internal hollow containing 3 larvae  
75 long, .25 wide. Larva yellowish  
3 1/2 times as long as wide, hb black, |



196 Ulmus ~~crucifera~~ <sup>frugus</sup> on true white elm R.R. bottom. July 20.  
An irregularly oval, <sup>or fusiform</sup> pale green, gall on the upper face  
of leaf, 1-8 on a leaf, with a short robust peduncle  
springing from <sup>often but not always</sup> midrib or one of principal veins,  
with a few white hairs. <sup>opposite sides at small subsepal angles</sup> Inside with dense flattened  
chalcid at base radiating from the thin external  
shell & some of them white <sup>of them occasionally</sup> down. <sup>opened 10</sup>  
I found no living insect. Very like Aceris localis.  
Length .25 under. Inside wall of gall rarely crimson

Rhois ~~tomatas~~ <sup>Staphor Sumach</sup> July 20 - on Rhus typhina - grows  
from the midrib of leaflet, rarely from one of  
side-veins, 1-3 on a leaf, pyriform, small  
and basal, green & downy now. Largest about  
 $\frac{3}{4}$  inch long.

Zanthoxylum "Colderi" <sup>Probably = O.S.N. 23</sup>  
Vitis californica <sup>on one in yard</sup> smooth, green  
showing oval <sup>or fusiform</sup> enlargement of the leaf stalk, generally  
close to the leaf, rarely on the <sup>small</sup> long bearing stalk.  
.50 - .85 long, .20 - .30 in diameter. Polythalamous.  
Larva Cecid. pale greenish hyaline with <sup>with</sup> ~~head~~ <sup>breast-bone</sup>  
= 2 transverse black dots. <sup>1</sup>

Tilia pilula. [Noticed 1 aphid on vigorously swelling out  
of fully-opened green gall.] An irregularly round or  
oval, sepals pale green gall, bisected by the plane  
of the leaf, not confined to veins, flattened above  
& below & generally tinged with rose on the O

above & below, both surfaces coarsely <sup>197</sup> ~~reticulate~~  
& with 4 or 5 stria radiating from <sup>a small</sup> central  
depression. Mostly now burst open below  
(like g. pilula) & the cap of the gall fallen  
off leaving only a rough brown surface.  
The upper surface entire but changed to  
a deep blood-red color. Found 1 cecid. larva  
<sup>oblong short</sup> & 3 or 4 callenore & 1 or 2 other  
chalcid. in green galls, one in each. i.  
monothalamous. 1-20 on a leaf, 2 or 3  
often confluent. Diam. gall .13 - .30 inch.

Gall tiliac. vena. a simple enlargement of a  
main-vein .20 long & containing 1 elongate white  
cecid. larva, breastbone .10 inch long.

Tilia localis - epiphytous fungus - like Aceris  
localis - no larvae in it. 1 specimen

Juglandis caulis (Black Walnut) a solid fleshy  
oval irregularly subsepalous swelling .35 - .42 in  
diameter <sup>clinging the</sup> leaf stalk, <sup>or middle of compound leaf</sup> internally grass green, ex-  
ternally except near leaf stalk with a dense glaucous  
reddish brown woolly-pubescent surface like <sup>check of</sup> ~~leaf~~  
No larvae, but indistinct incipient cells? not outlined.  
Cecid? gall?

Juglandis localis on Black Walnut. Much like Aceris  
localis; inside white woolly fibres. No insects.  
Epiphytous fungus? On upper face of leaflet.

Teratophyllum vermicularis on C. tomentosa July 23; = that  
on C. crataegus; larvae the same. <sup>many specimens</sup>



1934 Carya semen p. 194 (Carya glabra bottom of gran-  
yard hill.) Besides the sluggish yellow mother-coccus  
& the eggs, there is a very active <sup>hairy</sup> Chalcid larva  
in some of these galls. Inquisitive? No joints to  
body? Allied to Stenus? Found in one a larger  
hairy Chalcid larva, with snapping jaws & pointed  
tail. Found more 8 or 9 young coccis, <sup>elongated</sup> yellowish &  
very active. Mother coccus in another roundish, yellow  
& dull. Evidently a coccus. In another 8 or 9 young coccis  
& mother. Mother deeper yellow.

Gall Carya pulula. on C. glabra. abundant but local.  
A globular, pale green gall on general surface  
of leaflet, 1-9 on a leaflet, .10-.20 inch in  
diameter, braced by plane of leaflet, upper face  
a little flattened, lower with a small ripple  
both surfaces with a reticulate appearance from  
veins, darker & very slightly depressed. Mostly now  
turned blackish, & lower ripple burst wide  
open <sup>by a decussate slit</sup> so as to show 4 angulated blackish  
lobes tipped with white. Those not burst  
contained now a chalcid larva; hairy &  
with black jaws & bristles much. (20 galls thus)  
Must be cecid gall, & larva gone underground.

Mr. F. Merrill, Commercial College, D. C.  
knows of a breed of tailless cat in N. H.  
(Young Gown)

Only on tree E. of road to grave-  
yard & S. of large Cottonwood then

July 25 Gall Carya papella <sup>Shelley</sup> Cecid. on C. alba. <sup>1934</sup>  
Smooth, greenish-white irregularly hemispherical gall  
.15 or less in diameter, the 0 of hemisphere attached  
by a point to lower surface of leaf, the other surface  
excavated with a <sup>large</sup> conical ripple in the middle  
tipped with brown, rising often much above the  
hemispheric edges of which are crinkled &  
form an acutely margined circle surrounding the  
central ripple. Inside a smooth cell, but no larva  
yet visible. Sparse, 1 or 2 on a leaf, among numerous  
holomocha? galls. No. = Epiphyllous fungus.

Gall Aceris localis. Coccid.? Found one small gall  
Smooth inside, no really processes, & no larva.  
In the gall very many elongate, shaggy, pink like those  
in Crataegi vermicularis. Of 20 galls opened, 11 contained larvae.  
Found a singular Coccid.? at large on maple leaves.  
Runs fast. Pale infous. Dusk of back largely  
brown. 3 lateral <sup>white</sup> caudant spots & another  
over head. <sup>an irregular white dorsal spot</sup> Ant. moderate. Mouth very strong.

Inquisitive on A. localis. Taric conatus with libra & p.  
Found 1 small Caryocaulis on large isolated C. glabra.  
& several on another, some on <sup>young</sup> leaves, only partially  
developed at tip of young shoot. Still decussate.

Sal. trapae. burrowing in heart. 1st larva .10 long,  
gray-green, 16 footed, head black emarg. behind,  
an obsemicircular pale brown plate on 1st.  
a few long hairs on anal end.


a larger one (killed) .25 long, differs in head be-  
hind, plate on 1st. black & young head  
less very black. Hairs some in front.



200) Sal. Brasicae. Sep. larva No. 3. Pale green-green, with rather sparse white hairs. Head greenish white, a <sup>dark</sup> green dorsal line & a subdorsal which line. 16 feet, normal, length  $\frac{1}{2}$  inch. not tapered at either end, & 8-10 lines as long as wide. Among outer leaves, not burrowing in heart.

Gall Vitis fusca. on Vitis Saligna? cordifolia. A roundish mass,  $\frac{1}{2}$  -  $\frac{3}{4}$  inches in diameter, of opaque, woolly-pubescent, fusiform or somewhat flattened-oval <sup>green</sup> galls, each .50 - .75 inch long, springing from a common centre at the place for a bud, <sup>the whole</sup> evidently a deformation of a bud, each gall representing a leaf. Occasionally an undeformed leaf with its peduncle puts forth from the common centre, bearing at the junction of peduncle with leaf a couple of galls. Each gall monothal. & Cecid. See last year.

Fusca aceris crumena. On sugar-maple. A pale green elongate hollow fusiform fungus, 1-26 on upper face of leaf, .10 - .25 long, &  $\frac{7}{8}$  or 8 times as long as wide, a slight depression slightly decolorated on under side of leaf opposite to each. Inside roughly granulated. Top of some blackish, & a few already blackish, <sup>in peduncle brown</sup> & apparently withering, but not burst open. Very abundant & not local. Two only out of 20 opened contained same larva as aceris loculus.

+ Gall carya pomum. On C. alba, always on upper (201) Face of leaflet, 1-10 on a leaflet. a globular opaque <sup>rather dark</sup> green gall with a slight brownish terminal nipple, the whole clothed with dense long erect white hairs. A few already brown. Inside polished & shell thin but rather hard. Diam. .07 - .17 inch. Attacked only by a small portion of globe. Larva robust, whitish-hyaline, .05 long, <sup>chestnut</sup> , internal dark yellowish. Cecid.

Gall carya lituus. on C. alba, <sup>often more or less depressed</sup> on lower face of leaflet, a ~~pale green~~ <sup>smooth elongate</sup> conical gall .15 - .24 long, the base flaring & spreading out on face of leaflet in 4 or 5 irregular teeth, hp blunt & splits a little way down into about 3 divisions. Inside fleshy, solid, except a minute cell at base. Cecid.? Differ from sanguinolenta in color & in the flaring base.

+ Fungus telia loculus. Externally much like Aceris loculus, but internally full of hyaline <sup>whitish</sup> linear fibres growing from external skin. Out of 10 opened only 2 contained a larva as in Aceris loculus. But one only in each. [All the above fungus examined with Stanhope lens carefully.] On upper face of leaf, <sup>sometimes on lower face</sup> 1-8 on a leaf, not very abundant.

Gall? telia batatas. On turnip a sessile oval sub-scabrous potato-like gall, partly fresh-green, partly brown-scabrous. .65 long or less, & <sup>about</sup> .40 in diameter. Inside white, fleshy, no larvae or cells. [April 7 of following year they had burst open in irregular slots & were full of smooth oval cells. Specimen 1 with peduncle.]



202. *Fraxini badius*. On *Fr. americana*. A mouth-like  
 Gall. <sup>greenish white</sup> Prominence on lower face of leaflet, about .10 long,  
 & projecting .02-.05 from leaflet, the lips white-  
 woolly-pubescent, sometimes closed, sometimes  
 open in an irregularly oval form. <sup>Inside hollow</sup> ~~Often~~ but  
 not always on one of <sup>primary</sup> side veins, always on a vein  
 of some kind, never on midrib. Opposite side  
 a very pale green smooth slight prominence.  
 Inside not smooth but granulated. Cecid.? No larva.  
 1-4 on a leaf. (spherical or elongate)

1-4 on a leaf.  
Gall carya toletus. On *C. alba*. A depressed-spherical <sup>(or spherical or elongate oval)</sup> coarsely granulated, greenish <sup>or rarely greenish</sup> white, gall on lower face, .15-.23 in diameter, attached to the leaf like a mushroom by a very short but robust cylindrical peduncle; a minute nipple at tip. Inside smooth but finely granulated; a large hemispherical prominence opposite the peduncle. Skin thin & soft. No larva in 3 cut open.

Frax. Almi loculus. on H. fulva. 1 spec<sup>n</sup> like Acen loculus.  
not opened. Alamy 0.5

all Vitifoliae. Mostly preyed on by *Euryphide* / Larva orange  
with long slender pseudopods & walks as well as any  
lepid. larva. A few still contain coccid. eggs & larva.

Sil. base. gall. narrowing in heart. Sawe of Anthon. Lefkellatus  
07 long, yellowish mostly curdy white above. Twice as long  
as wide, curved in  $\Delta$  Head. Honey yellow, mandibles  
brown black, robust, equilaterally  $\Delta$ , ~~not~~ with subterme

look, ~~with~~ curved term. tooth.

July 27. Sal. Mafai. Lep. Larva N. 4 (saved) Length  
440 inch. not tapered, 8 times as long as wide. Pale greenish  
yellow. Head glossy rufous. 1<sup>st</sup> ft. glossy brown black  
separated by whitish line from head. 5 pale brown  
spots (narrow). Two dots <sup>lengthwise</sup> on 2 middle valentines, on each ft  
9 & 1 on outer valentines, each with a long white hair.  
Legs blackish. 16 legs, normal. Spins a thread, &  
runs backward & runs very fast. Tortoise?

July 27. Gall carya tuba, on C. alba. Differs from C. tuba  
(p. 201) in being hairy & scabrous.

Gall? Puni crumena, on upper face of leaf of wild  
plum, 1-60 in number, an elongate fusiform blunt-  
tipped opaque gall .10-.16 long, 4 or 5 times as long as wide,  
<sup>with a few erect hairs</sup> constructed at base. Color pale green, hard often brittle  
~~& very fragile~~ & rosy. Inside rough, with scores of very minute  
~~white lice~~ white lice, very sluggish. In opened galls  
had lice. Aphidina? or Coccinea? a little powdery  
dust seemingly among the lice. Many (yellow) crawlers on  
the 110 opened galls contained lice.

10. Gall, Cerasi crumena. On Crasas, <sup>leaves outside.</sup>  
 6-9 times as long as wide <sup>serotina</sup>, ~~a~~ <sup>gall</sup>  
 .34 long, 17 on a leaf almost always on  
 upper face, ~~rarely~~ rarely below, a very elongate, subclavate  
 hollow opaque gall, without any hairs; ~~base~~ basal  
 part sometimes solid <sup>like</sup> <sup>peduncle</sup> of leaf, often  
 hollow <sup>Color I very pale green.</sup> <sup>Inside with circular tough</sup> <sup>spale reddish brown</sup> <sup>filaments,</sup>  
 a few <sup>very minute</sup> <sup>white</sup> <sup>hyaline</sup> sluggish lice. Top  
 and when mature, bursts <sup>laterally</sup> <sup>open</sup>, <sup>turns</sup>  
 brown. A few yellow lice crawling on leaves outside  
 of it opened, 9 contained lice.



204 Gall *Populi globulus* <sup>Chrysomelid</sup> <sup>Populus tremuloides</sup> <sup>Quaking asp.</sup>  
a fleshy hollow very pale green gall upon or on  
one side of midrib of leaf, 1-5 in number; <sup>upper</sup>  
hollow & opening with a slit below. Aphid.  
diam. .10-.20 inch, round or oval.

Gall? *Pyri aequina* <sup>on P. coronaria (Cal.)</sup>  
coloration & thickening on both sides, the leaf <sup>about</sup> .25 in  
diameter, the centre a little depressed above  
& with 10-30 minute acute black tubercles; beneath  
a thickening in the form of a ring with numerous  
round brown <sup>openings</sup> <sup>in a month</sup> tubercles, flat at top & with a  
coronet of brownish white hairs. Inside fleshy  
but no larva seen. <sup>with minute with cells opening up a month from gall being</sup>  
~~with solid whitish cells, 1-6 on a leaf.~~ <sup>when cut open, plane of leaf</sup>

Aug 1. Cut open last year 2. *erucacei* galls. Many  
C. g. *erucacei* (apterous) in one gall found 2 eggs,  
larva, both plump & certainly alive, in a 4-  
celled gall, 1 C. g. *eruc.*, 1 such larva & 2 empty cells.  
In 3-celled ones, 1 larva + 2 = 0. One 2-celled, 1 larva + 0.  
In one one 2 larva + 1 = 0.

Gall? *Populi semen*. An irregularly hemispherical  
prominence on upper side of leaf .05-.10 in diam.  
opening below by a very wide o mouth. Inside  
granulated fibres. Color green fading to black.  
<sup>grandidentata</sup> <sup>Quaking asp.</sup> July 31. No inside. *Acarus*?

Aug 2. *Crataegi varmiculus* <sup>in Crataegus</sup> <sup>as before</sup>. Larva  
pale grey, 4 times as long as wide, legs in front, side

rather than walk.  
Gall *Vitifolia* Fitch. Old cocoon still in a gall with narrow  
eggs. Larva distinctly 1-jointed. Simple body .02 inch,  
almost motionless. Young larva in a gall three or four days  
clearly hatched, eggs distinct, antennae stout, shortish, <sup>like</sup>  
eggs. In one gall 3 old half-dead lice & a dozen eggs.

One old louse body, tarsi plainly 1-1? + 1 young lively louse.  
Gall *Caryocarpa* Fitch. In some young lice, hatched, eggs had  
before eggs, antennae. In others eggs. In some yellow. Chalcid  
pupa, still some eggs remaining. Old louse .015 long; tarsi 1-1?  
parently 1-1? Clearly a cocoon. Ant. shorter than legs, 3-5? 3rd longest.  
[An *Aphis* larva? on surface of leaf has 1-1? tarsi.  
Old lice round, young twice as long as wide. A hyaline white  
acaroid in one, .01 long, ant. longest, but only 6 legs (contains).  
In another 2 or 3 much smaller. & a great deal smaller than cocoon  
eggs. Must be *inquinatus*. In one gall a good dozen of young lice  
+ ditto eggs. <sup>basium (p. 202)</sup>

*Fumini latipes*. No larva or insects, except from one  
a large *Thrips* larva came out.

*Carya semen*. Larva cocoon? .01 long, 3 or 4 in a gall  
with some young ones. Ant. 3-5? 3rd much longer.  
So in *Vitifolia* & *Caryocarpa*. (white mulberry)

*Verbaecum lychnitis* & *hybridus* freely with  
*V. thapsus* (common Mullein) in a state of <sup>hyaline</sup>  
[both introduced from Europe] Gray's Man. 8 288.

Aug 3. Opening *Caryocarpa* gall ran out 2 or 3 <sup>hyaline</sup>  
small legs, ant. long about 5 or 6-1? no segments to body.  
No distinct head. Out of another came 2 *Thrips* imago.

Aug 4. *Filix localis* (see p. 201) <sup>somewhat</sup> length 10-.25, oval  
or roundish, with 6 or 7 long setae, tip <sup>generally</sup> split a little  
into several tubercles. Of 20 opened, only 2 contained a single *Acarus*




206) which was precisely like those (in pupae) escaped from other galls, e.g. *Caryocarpus*.

*Aceris loculus* (p. 193) Subrotund, peduncled. Largest now only .15 long. Acarus 3 pair of legs close in front, 1 pair close behind, hyaline <sup>whitish</sup> 2 1/2 times as long as wide. Very young, pale <sup>3 pairs of legs</sup> very, & sluggish. Skin with protuberant; of 22 galls opened & carefully examined 8 (green) contained hyaline larvae, 1 (green) pink larvae, 4 black & 1 half black = 0, & 7 (green) = 0, 1 (black) pink larvae. Many galls now (say about 1/5) withered & turned black.

Gall *Populi* <sup>maybe *P. globulus*</sup> *osculans*? <sup>p. 204</sup> *P. tremuloides* Aug. 3. An ovate subglobular swelling, tip truncate excavated with a mouth-like slit at bottom of excavation, diam. 1 inch, <sup>one side of leaf</sup> on leaf stalk close to leaf. <sup>Color outside pale green, partly</sup> Inside fleshy, <sup>pale green</sup> with a small hollow, containing in 1 gall a chalcid pupa. *Pyrosopha*? 2 specimens.

Aug. 3. Found many *Rhois tomentosae* on <sup>some brown</sup> *Rh. glabra*. W of Dunlap's field, just beyond fork of road leading W, right hand fork. Larvae bright yellow, ant. 4-5, 1 = 2 = 3 = (1/2) 4. June 1-5, but longish.

Aug. 5 *Aceris crumena*. Of 10 opened, 9 contained larvae, 3, 30 or 40. 

Gall *Aceris arcus* n. sp. (Cecid.) A pale green swelling semicircular in outline or irregular on lower part of one of side veins of a leaf, <sup>above leaf</sup> opening <sup>slightly</sup> by a slit. Some long white hairs below. Inside hollow, only 1 or 2 on a leaf & not abundant.

shell smooth inside, thin & hard. Length .10-.13 (207) Larva dark yellow with lateral & ventral cord, white markings. B.B. & linear scarcely clove-shaped. Body 2 1/2 times as long as wide. *Acer saccharinum*.

Gall *Ulmis* *sericea* n. sp. on *U. americana*. An irregularly spherical <sup>swelling</sup> ~~swelling~~ <sup>placed in place of leaf</sup> ~~placed in place of leaf~~ with some long white hairs, below a <sup>small</sup> ~~shallow~~ <sup>shallow</sup> crater with <sup>inside hollow, rather rough</sup> ~~rough~~ walls. <sup>as if to resemble a</sup> ~~as if to resemble a~~ <sup>very</sup> shallow crater with robust walls. 50 or 100 on a leaf, many confluent. Diam. .05 & under. Five or six very minute hyaline acarus larvae inside, 4 times as long as wide, sluggish & like those of *Cr. vermiculus*.

*Fraxini basium*. Of 13 opened, 2 contained <sup>scores of</sup> pale pink larvae like those of *Cr. vermiculus*. Mouth of many now tightly closed. (black & smoother inside)

*Crataegi vermiculus* (*Cr. tomentosa*) of 10 opened all contained scores of pale pink larvae as before, but of several seemed to run a very lively <sup>minute</sup> ~~hyaline~~ <sup>hyaline</sup> ~~hyaline~~ when opened. Mother mite?

*Quercus loculus* on Black walnut. Almost always on upper free of leaf, a woolly-white spot on opposite side, an irregularly globular or oval <sup>more</sup> ~~gall~~ <sup>gall</sup> with a short robust peduncle, .10-.18 long, pale green, & ~~green~~. Inside with dense white & pinkish <sup>curly</sup> filaments filling whole shell. 1-4 on a leaflet. A few already black at tip. Of 12 opened only 2 contained a single hyaline *acarus*; ~~ant. 4-5~~ not very long.

*Ulmis crumena* on *U. americana*. Mostly now turned black. An irregularly globular or short-oval <sup>in case</sup> ~~in case~~ <sup>gall</sup> on upper free of leaf. .10 long, or less. 1-15 on a leaf. Inside with red



208 or pale <sup>consp</sup> wrinkled filaments, not very dense. Acanthia  
In 15 opened no larvae, except in one. a dark (Thrip?)  
larva, lost.

Aug 7. Traxia verruca. Opened 17. 8 = 0, 4 contained  
a single lappi-con hyaline acarus; 2 hyaline acarus  
with black disk; 2 brownish acarus with black  
internal disk; & 1 a legless? oval hyaline body?

Ulmus crumena or U. americana? North of U. galligena on  
Island. agrees with description p. 196, but 1-55 on a leaf.  
the .30 long, & generally fusiform. Three as long as wide.  
Of 25 galls opened 10 contained many larvae, three as long  
as wide, whitish hyaline. Found a single small wi-  
thred gall on "U. micola" elm on Island.]

Aug-9 Ulmus crumena (or true U. americana. Some galls  
.30 long.) of 10 opened, 5 contained larvae, chiefly those  
pinkish inside. Skin inside & bulb of hairs pink  
more or less in these.

Ulmus localis (or U. fulva) Subglobular or but slight-  
oval, with a stout very distinct peduncle. Outside  
rugose with dense short white hairs. Inside no  
clavate hairs, but irregular mostly deep dull crimson  
excrecences. Of 15 opened 9 had larvae & 1 showed  
1 lively long-horn acarus (white hyaline) & 1 showed 2.

Crales flava some now 70 long & 17 wide. Larva  
yellowish (cardy markings). 10 long, b. b. black. Carcel  
larva & pupa impelunous (cecid. destroyed) in one galls  
a hairy larva (= carcel?) attached externally to Cecid larva  
in one gall a cecid. larva. b. b. & uniform. In one a dipterous  
egg? a few hairs on outside of some galls. In two galls parasite  
& cecid. larva at opposite ends of gall & usually

+ Ceraui locutus <sup>crumena</sup> some now 45 long. of 8 galls opened 209  
2 only contained larva, both numerous, 1 subachne ovis two  
as long as broad one sluggish ovis three as long as broad.

Carya spina <sup>cedrom.</sup> n. sp. (on C. glabra, often on upper than  
under side of leaf, 20 lower to top) an elongate conical  
gall. 38 long or less, .10 in diameter, clavate more or  
less in a bulb at base & contracted at extreme base  
covered with dense white pubescence. Shell hard!  
& thin. Inside cell extending almost to extreme  
tip, polished. Larva <sup>.05 long</sup> hyaline with yellow dorsal  
breast. blackish, shape Spanish. In many no larva.  
color pale green, tipped rarely with brown. Often a  
little curved.

Persicoides? o.s. on C. glabra. Diameter .15 & less.  
Shell hard & thin. Always on lower face. Like gall  
on C. alba. Shell thin & hard. Inside smooth. Same  
milk white - hyaline. 2 1/2 times as long as wide. b. c.  
brown 1 larva. { a single one which was strongly pubescent (X seen)  
contained a roundish yellow larva. b. b. }

Subicula? o.s. on C. glabra. Length .12 & less. Some  
just emerging from basal cup. More brown yet, as in  
most on C. alba. Shell hard & thin. On under side of leaf.

Carya cylindrus n. sp. on C. glabra. a cylindrical gall  
slightly enlarged in the middle, barrel shaped. Length  
.10-.12 long & 2 1/2 times as long as wide; top square  
truncate with a pointed tubercle in the middle  
tipped with a brown point. On lower face leaf. & tubercle  
(young) by having no acorn like cup. 1 specimen

on Carya glabra n. sp. Like Persicoides, o.s. but much  
longer. Hairs. Inside nearly solid. Lower face. See p. 196



250) *Cynips*? o.s. on *C. glabra*. A small clavate swelling on  
 the side-vein <sup>as many galls</sup> (on a leaf). 2 or 3 long, causing  
 an arching upwards of the vein above & a depression  
 below, with some wrinkling both sides. Cell long, smooth  
 larva only .02 long, but manifestly cecidom. Larva  
 markings & Bb. black. Often some brown scabrous  
 on the gall. Texture hard fleshy, not a mere shell.

Benj. S. Mott, Secretary  
 President

The motion adjourned sine die.  
 Unanimously.

Then of each be done by the Society. Carried  
 to down city for the above object, but personally  
 he necessary for the Secretary to go personally  
 Moved by J. W. Brewster that in case it should  
 object. The offer was accepted unanimously.  
 Society out of his private funds for the above  
 available amount subscribed in the Book of the  
 The Secretary offered to advance the whole  
 Carried unanimously.

of the Kansas Seamen Society of that place.

*Carya* <sup>laminaria</sup> ~~patella~~ n. sp. on *C. glabra* <sup>alba</sup>. A flattened 211  
 plate-shaped gall on lower face of leaf, <sup>pale green rarely just largest galls, tinged with purple</sup> near  
 the leaf a little rounded & attached by a pedicel,  
 opposite side more or less excavated, but  
 without the circular edge of the plate being  
 at all acute, with a minute <sup>surge below with exceedingly short dense edge of pedicel</sup> nipple  
 in the center. Opposite side of leaf a  
 hemispherical pale green or rarely blood-brown  
 protuberance, half the diameter of gall, which  
 is .15 or less. Inside hollow, the upper & lower  
 shell almost touching, rarely solid & fleshy.  
 No larva yet visible. Not sticky & *C. patella* &  
*C. pycnantha* <sup>galls</sup> by rounded edges. The large gall .21 wide is sticky.  
 .04 long, robust

*Carya patella*. Larva now white-hyaline. B.b. 1  
 Gall hard but fleshy. <sup>galls later cap formed</sup>

*Carya pycnantha*. n. sp. Larva whitish-hyaline,  
 .06 long, robust: B.b. + dagger shaped. A pale-green  
 gall, always on lower face of leaf, (on *C. glabra*)  
 with a short stout peduncle, hemispherical, the  
 O towards leaf, other face deeply excavated with  
 a central blackish <sup>erect</sup> nipple, the <sup>small tubercle</sup> <sup>min</sup> & acute  
 & inflexed so as to point to the nipple with  
 some flairs & raggedness. Diameter .16 or less. Always  
 sticky.


*Carya boletus*. Some now .26 in diameter. No larva in  
 two cut open. Shell very soft, internal cap very large  
*Carya tuba*. Two sanguineous. Not very hairy.



*Carya <sup>laminaria</sup> patella* n. sp. On *C. <sup>alba</sup> glabra*. A flattened <sup>211</sup>  
plate-shaped <sup>pale green rarely just largest galls, tinged with purple</sup> gall on lower face of leaf, <sup>near</sup>  
the leaf a little rounded & attached by a pedicel,  
opposite side more or less excavated, but  
without the circular edge of the plate being  
at all acute, with a minute brown nipple  
in the <sup>surface</sup> <sup>below</sup> <sup>with exceedingly short dense corymbous hairs</sup> center. Opposite side of leaf a  
hemispherical pale green or rarely blood-brown  
prouberance, half the diameter of gall, which  
is .15 or less. Inside hollow, the upper & lower  
shell almost touching, rarely solid & fleshy.  
No larva yet visible. Not sticky & *C. patella* &  
*C. poculum* <sup>valley</sup> by rounded edges. The large gall .21 wide is sticky.

*Carya patella*. Larva now white-hyaline. B.t. 1.  
Gall hard but fleshy. Galls, later, cup & saucer shaped.

*Carya poculum* n. sp. Larva white-hyaline,  
ob long, robust: B.b. + dagger shaped. A pale-green  
gall, always on lower face of leaf, (on *C. glabra*)  
with a short stout peduncle, hemispherical, the  
O towards leaf, other face deeply excavated with  
a central blackish <sup>crossing</sup> nipple, the O <sup>small tubercle</sup> <sup>min & acute</sup> <sup>& inflexed</sup> so as to point to the nipple with  
some flaccid & rugosities. Diameter .16 or less. Always  
sticky.

*Carya boletus*. Some now .26 in diameter. No larva in  
two cut open. Shell very soft, internal cup very large.   
*Carya tuba*. Two sanguineous. Not very hairy.



212) *Carya* o.s. Larva Rb. [C. alba?]

*Populus semina* or *P. grandidentata*? S. side of Davenport's field, E. of Case's House. Of 5 cul open one contained a *Acaroid* image, yellowish with 5 or 6 dusky spots. Nest = 0.

Aug. 11 *Carya* ~~boletus~~ <sup>holotricha? & knobby & velvety like *boletus*</sup> but inside spherical. Found a small *lepid. larva* evidently *rubra*. In another found a bright yellow larva with black Rb.

*Caryocola* o.s. shell now =  $\frac{1}{2}$  -  $\frac{1}{4}$  <sup>crop</sup> diameter of gall. Larva whitish, Rb. [on C. alba?]

\* *Carya boletus*. No larva: many galls opened.

*Holotricha*: mostly <sup>another Rb. pale & distinct</sup> ~~galls~~ larvae yet. {Two yellowish? Rb.} {one whitish?}

<sup>Several had very minute larvae.</sup> *Gall vitis tetriculus*. <sup>Coecid. in tendrils & occasionally</sup> leaf stalks of a thin-leaved German grape from Bloomington, Ill. The part ~~irregularly~~ <sup>enlarged</sup> to 3-5 times its natural diameter in an irregularly oval shape with some rugosities but no pubescence. Inside an irregular cell containing 2 or 3 cocci similar to those of *vitifoliae* but  $\frac{1}{3}$  smaller diam. (or  $\frac{1}{2}$  of .03) Color <sup>deep</sup> yellow; many yellowish eggs .01 long. On the tendrils color is changed to lake red, but not on leaf-stalk. 3 or 4 galls often in the length of 1 inch, a few almost confluent. Mostly now widely burst open <sup>laterally</sup> but a few still closed. Texture fleshy, but pretty solid.

Aug. 12. *Carya mamma* n.sp. Cecidom? On C. glabra. A slight swelling & thickening of the blade of the leaflet, the natural color above, below several shades paler, with the veins as dark as natural, the protuberance below

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terminating in a nipple-like point. diam. 20 or less. Michael about .05, with no smooth oval cell now lined with cocoon. In two were larva, but cut in opening. In two chalcid imago. In two <sup>common</sup> *Acaroid* images (white hyaline). Nest mostly lined & empty.

*Carya cocoon* n.sp. on C. glabra. <sup>pubescent</sup> the oval pod-like or rather cocoon-like gall, 2-3 times as long as wide, when young & small roundish. Color from pale green to pale brown. Shell <sup>thin</sup> hard & brittle inside rough, with some excrescences. *Acanth?* Of 16 opened, 2 <sup>(dark opal)</sup> contained a single *acarus* image, one of them also 8 *Nepthidrum* eggs & one two such eggs. (Galls opening above by a minute round hole.) And near one or two more *acari* were running when opened. 9 oval galls were empty; 5 small empty. Attached by a single point only at one end, & always procumbent strictly. *C. cylindrus* by rounded tip.

*Holotricha* on C. glabra. (no larva) = B  
*Carya semen*. Mostly empty now & open below. In one found a single *Coccide* egg out of 20 or 25 opened. Out of 2 ran a single white *acarus* imago.

*Carya cylindrus*. 1 on C. alba = B brown.  
*Sanguinolenta*? o.s. on C. alba. 6 on same leaf, but with longest rather sparse pubescence. <sup>in C. alba</sup> The very hairy *holotricha persicoides* are ~~very~~ softer & smaller: probably immature.



214 Many Thrips (larvae) in many of these Hickory Galls.

+ Pericorder? on *C. alba*. Larva .10 long, white, with  
distinct Y-shaped lbt.



All a Meeting held at the usual place upon  
 Wednesday Jan 25. 1856, pursuant to notice  
 duly given by the Secretary, there were present  
 Geo. White, Pres., Joseph W. Brackett, John G. Brown,  
 J. J. Bennett, J. W. Spencer, Alex. Steel and  
 Henry D. Walsh, Sec.

The Secretary stated that at the earnest  
 request of Peter Fay Esq., Chairman Executive  
 Committee of the Chicago Board, he had attended  
 the Kansas Convention held at Cleveland Ohio  
 Jan 20th & 21st as an informal delegate from  
 this Society; & presented Bill of his expenses  
 on the Road amounting to forty three  
 dollars.

Resolved unanimously that the Secretary be  
 allowed the amount of said Bill.  
 Moved by Alex. Steel that all available  
 funds be appropriated towards equipping &  
 forwarding a number of Kansas Emigrants  
 lying in Camp near Iowa City; & that such  
 funds be paid over for that purpose into  
 the hands of Hugh D. Brown Esq. Secretary

of the Kansas Southern Society at that place.

Carried unanimously.  
 The Secretary offered to advance the whole  
 available amount subscribed in the Book of the  
 Society out of his private funds for the above  
 object. The offer was accepted unanimously.

Moved by J. W. Brackett that in case it should  
 be necessary for the Secretary to go personally  
 to Iowa City for the above object, his expenses  
 there & back be borne by the Society. Carried  
 unanimously.  
 An motion adjourned sine die.

Resolved,  
 Henry D. Walsh, Secretary

etc) *Cynopoda?* o.s. on *C. glabra*. A small clavate swelling on  
 the side-veins <sup>as much as half</sup> (on a leaflet) 20 to 30, <sup>usually close together sometimes</sup> <sup>causing</sup>  
 an arching upward of the vein above & a depression  
 below, with some crinkling both sides. Tell long, smooth  
 sawa only .02 in, but manifestly cecidom. Hardy  
 markings & Bk. black. Often some brown scabrous  
 on the gall. Texture hard fleshy, not a mere shell.



At the adjourned Meeting held June 17<sup>th</sup> 1856  
 there were present Geo. Mink, President, Joseph  
 W. Brackett, J. W. Shaver, J. J. Pearseley, Alex.  
 Steel, John G. Power, Wm Pitts per Henry Green  
 to Jas. Jackson, & Benj. D. Wadell Secretary.  
 Moved by Benj. D. Wadell that a corresponding  
 Committee consisting of three persons be appointed,  
 & that the President, George Mink, be a Member  
 of said Committee. Carried unanimously.  
 Moved by John G. Power that Jas. J. Wilkinson  
 be the second Member of said Committee. Carried  
 unanimously.  
 Moved by John G. Power that Benj. D. Wadell  
 be the third Member of said Committee. Carried  
 unanimously.  
 So the corresponding Committee was duly  
 organized.  
 Moved by Benj. D. Wadell that Joseph W.  
 Brackett be Treasurer of this Society. Carried  
 unanimously.  
 Moved by John G. Power that the action  
 of the Motion Librarian be appropriating all

funds raised in that town towards the equipment  
 & maintenance of a certain number of Kansas  
 settlers sent out to the Territory from that town,  
 be approved & adopted by this Board; & that  
 the Treasurer enter their subscriptions in the  
 C<sup>r</sup>. side of his account & then expenditures on  
 the D<sup>r</sup>. side, in the same manner as if there  
 funds had actually passed through his hands.  
 Carried unanimously.  
 Moved that any Member of the Board be  
 authorized to call a Meeting by notifying the  
 Secretary, whose duty it shall then be to notify  
 each Member of the Board of the time & place  
 of such Meeting. Carried unanimously.  
 The Committee of two appointed June 16. 1856  
 to draft Rules & Regulations reported progress  
 and asked a further extension of the time.  
 Granted unanimously.  
 In motion adjourned sine die.  
 President  
 Benj. D. Wadell, Secretary



# Kansas Seamen's Society, Rock Island Branch (consolidated Society)

At a Meeting held June 16. 1856 there were present  
John G. Brown, Joseph W. Brackett, J. W. Shuman, the  
proxy given to John G. Brown & Henry D. Wadsworth, the  
other Members of the consolidated Board having been  
daily notified of the time & place of said Meeting.  
Messrs Brackett & Wadsworth holding over as Chairman  
& Secretary pro tem. under the provisional organization,  
it was

Moved by Henry D. Wadsworth, seconded by John G. Brown,  
that George M. Wadsworth be President of the (consolidated)  
Rock Island Branch of the Kansas Seamen's Society  
of Chicago. Carried unanimously.  
Moved by Jos. W. Brackett, seconded by John G. Brown  
that Henry D. Wadsworth be Secretary of the said Board  
Society. Carried unanimously.  
Resolved, that Geo. M. Wadsworth & Henry D. Wadsworth be a  
Committee to draft Rules & Regulations for the  
government of this Society, and report to the  
Board at their next Meeting.

Resolved, that the Secretary furnish subscription  
Books to each Member of the Board, properly headed,  
that each Member of the Board be a Committee to  
collect subscriptions.  
Adjourned to Tuesday June 17th to meet at the  
Office of J. J. Beardsley at 8.30 A.M. The above  
Office being declared to be the Regular place of  
Meeting until further action in the case.

Wm. Saunders, London, Ontario, Canada  
Rev. L. Poiranacher, Portneuf, Quebec, L. Canada

John D. Wadsworth, Secretary  
to Houghton, Philadelphia,  
Agr. Dep. Washington,  
Wm. H. Pratt, Secy. Davenport etc. Nat. Sec. Box 585, Davenport,  
S. S. Rathvon, Lancaster, Penna.

Geo. Ausmann Hermann, Mo.

Isaac Hicks, North Hempstead, Long Island N. Y.

M. Huggett Esq. Gen. Supt. I. C. R. R., Chicago.

P. A. Hall, Assistant Gen. Supt of Chic. R. & Pacific  
R.R. Chicago. [For paper, other roads see Maj. Beardsley]

John Akhurst, 9 1/2 Prospect St, Brooklyn, N. Y.

F. G. Sanborn, Post. Soc. Nat. Hd. Boston.

S. B. Buckley, Geo. H. Burman, Austin, Texas

M. W. Phelps (Southern Farmer) Chatawa, N. O. & R.R.

Dr. V. L. Smith, Bath, Steamer Co. - N. Y.



Kansas Settlers' Society,

Rock Island Branch No. 1.

At a meeting of the Provisional Committee of the  
above Society, appointed in pursuance of the 1st  
Resolution of a Public Meeting held in the Court-  
house square of Rock Island June 12. 1856, and  
consisting of John G. Power, Joseph W. Bracken,  
J. W. Spencer, John Dwyer, Abram Pitts & Henry D.  
Went, held on Monday June 16th there were present  
John G. Power, Joseph W. Bracken, J. W. Spencer in  
person given to John G. Power and Henry D. Went  
Joseph W. Bracken was appointed Chairman pro tem.  
& Henry D. Went Secretary pro tem.  
Resolved unanimously, that the Board do write  
as one with the same Committee with a Committee ap-  
pointed in pursuance of the second Resolution passed  
at the aforesaid Public Meeting; and consisting of  
George Miller, J. J. Bondy & Alexander Steel, each  
of the three last named gentlemen having resigned their  
affid to such united organization; that the whole  
Board constitute the permanent Committee of the  
Rock Island Branch of the Kansas Settlers' Society  
of Chicago, Illinois.  
Henry D. Went Secretary.

Prussia & N.E. Nat. Seab.

- ✓ Allen Sackman
- ✓ Edwards
- Grote
- ✓ Le Conte
- Clement
- Uhler
- Norton
- ✓ M. S. Peck
- ✓ A. Agassiz
- Pachard
- Scudder
- (12) Ulke
- (13) Worthen
- Asa Gray?

Dr. H. Hagen via Bremen  
Char. H. Peck, Albany, N.Y.

Vorder Rosgarten 24  
Koenigsberg  
Prussia

~~C. V. Riley Box No. 1554 Chicago~~

- Aug. R. Grote Curator of Entom. Soc. Nat. Se.  
Box 3944 N.Y.  
Buffalo N.Y.
- H. W. Bates { 15, Whitehall Place, S. W., London  
40, Bartholomew Road, Kentish Town N.W.
- R. W. Sackman, 1 Park Road & Terrace, Forest Hill, London Ely.
- F. J. A. Linnaeus, 57 St. Cabot, Albany N.Y.
- Chas. Souse. 47 La Salle St. Chicago

Walter Riddell  
Canada West  
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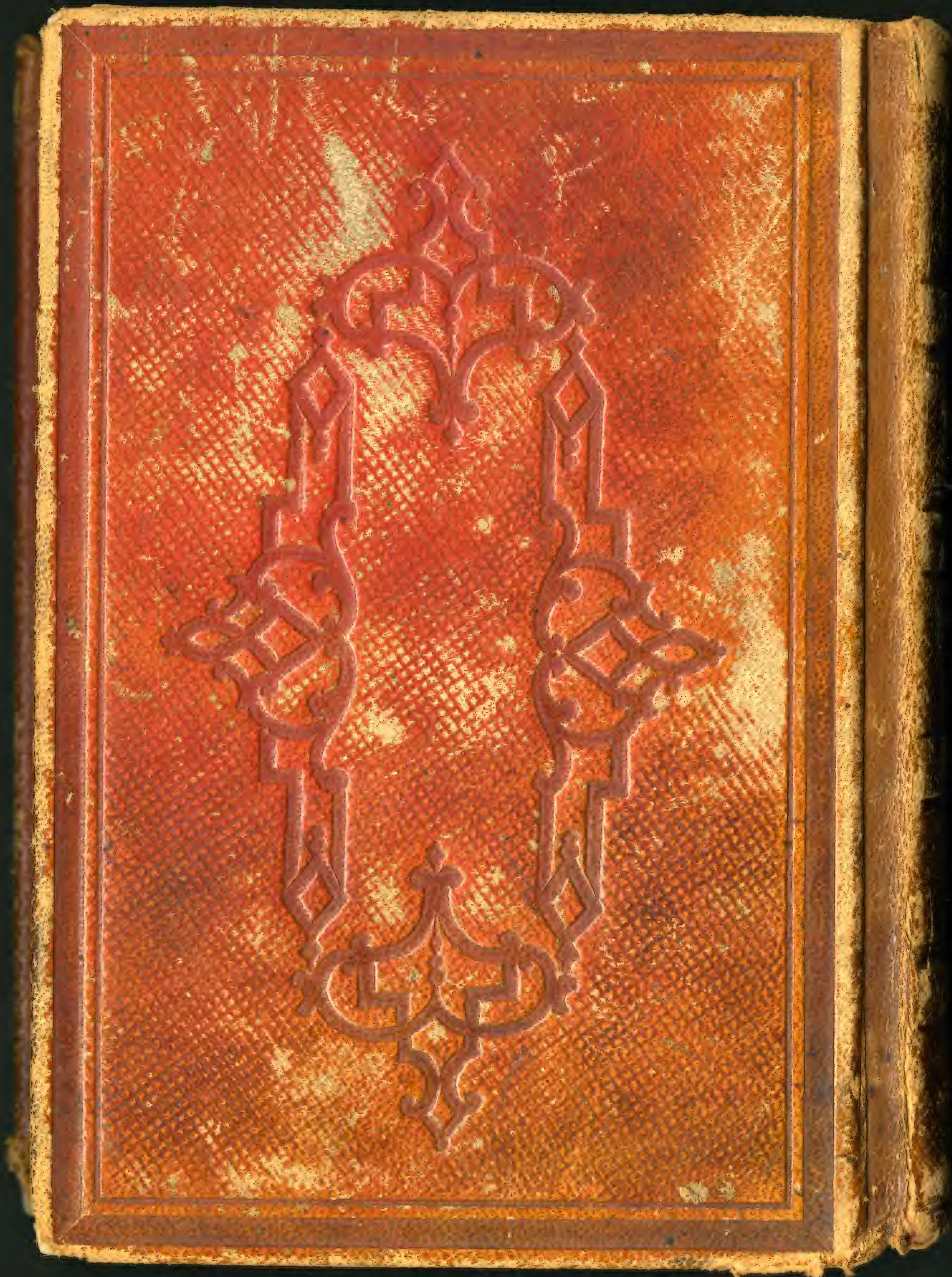
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- Barlett's cone pupa. p. 25
- Stilpnus apicalis from Mexican Fly Shows. p. 28
- Leaf-roller of Apple = *Porotana rosaceana* pag
- Beating paper (tanned) for canker worms p. 30
- "Polster under bark" horizontal. p. 30
- Curtis(?) "Farm insects" &c p. 31
- Eumecurus fraterus* (uses canker worms) Harris p. 471
- x *Carpocapsa pomonella* came out long before Aug 23 from apples gathered in July (p. 34)
- Datana mendicaria* on haw. p. 35
- Cestonophora incerta* (east of breeding exp) p. 40
- Erythroneura telarius* (mite) K & S. p. 43
- Coccus betule* & *Chalcidius bronchialis* under bark March 16. (p. 42)
- June 6. single ♀ in *Valeriana* gall p. 43
- June 11. week-worm *denigrata* shows p. 53 & 28x
- Bred *Corticaria puncta* from C. g. lacina galls p. 58
- \* Owl-chow-seed, larvae p. 58
- Perilampus brevipennis* in seed-pupa. —
- ✓ Crab-apple leaf gall p. 61 [a fungus]
- Glypta destructor* 3 only found in 1st. in. gall
- \* *Amphiprionella* &c "O.S." p. 63
- Phorbia albopurpurea* larva a *Cruciformis* mouth p. 64
- Worms on *Capsella* holes p. 64
- Phorbia* &c p. 65



100



with an oval spot each side. Third segment band gradually narrowed in the middle, fourth and fifth segments, bands slightly interrupted; venter immaculate.

Length nine-twentieths of an inch.

In the collection of Mr. William W. Wood.

This species would seem to be allied to the Perena, judging by the description that Fabricius gives of that insect, particularly as he describes the costal margin of the wings to be fuscous. That insect, however, is stated to be only a little smaller than the namea of the same author a size which at once puts that species out of the question.

---

Say Vol. I, p. 385.

Dipphia Fabr. Latr.



To quote from the expressive language of my late friend Benj. D. Walsh, in one of his papers in 1860 -

"If this one little gall and the insect that produces it were swept ~~away~~ out of existence how the whole world of insects would be convulsed as by an earthquake! How many species would be compelled to resort for food to other sources, thereby grievously disarranging the due balance of Insect Life! How many others would probably perish from off the face of the earth, or be greatly reduced in numbers! Yet to the eye of the common observer this gall is nothing but an unmeaning mass of leaves, of the origin and history of which he knows nothing and cares nothing!"

"The Horvitz of the Eastern Table claimed to have discovered the language of birds, while to the vulgar their notes were mere inarticulate sounds without passion and without meaning



The entomologist does not indeed  
pretend to understand the language  
of Insects, for, as they all breathe  
through spiracles or <sup>(thro' gills)</sup> tracheae, and  
none of them thro' their mouths,  
their mouths are everlastingly  
dumb. But from signs and to-  
kens well known to him he can  
interpret their actions, and re-  
cognize at a glance what object  
they are pursuing, whether sport  
or love, or war, or food for them-  
selves, or food for their future  
progeny, or the construction of  
habitations, either for themselves, or  
for that future progeny which they  
are doomed never to behold. Under  
every stone, under every clod, and  
even under the most despised sub-  
stances, there is a little world in  
miniature opened to his eyes. And  
there scarcely grows a plant but  
what contains, in <sup>its</sup> <sup>own</sup> <sup>triumph</sup>  
microscophs, a whole chapter of  
Natural History written by the  
finger of the great Author of our  
being.



✓ Quercus 1 cecid?  
 11 cecid. ✓ Vitis 11 Cocc ~~11~~ cecid.  
 O.S. ✓ Strakeus 1111 cecid, 1 acarid.  
 8 cecid. ✓ Carya 11 Coccid ~~111111~~ cecid.  
 ✓ O.S. ✓ Elmus 111 ~~1111~~ acarid. 1 acarid?  
 ✓ Tilia 1 acarid, 1111 cecid  
 1 cecid. ✓ Acer 11 acarid, 1 cecid.  
 O.S. ✓ Cornus 1 cecid  
 1 cecid. ✓ Fraxinus 1 (1?) acarid,  
 ✓ O.S. ✓ Negundo 1 acarid.  
 ✓ Rhus 1 Aphid.  
 ✓ Juglans ~~1 acarid~~ 11 acarid.  
 ✓ Prunus 1 acarid.  
 ✓ Cerasus 1 acarid  
 ✓ Populus 11 aphid?, 1 acarid.  
 ✓ Pyrus 1(?) cecid dom? ~~1 acarid?~~  
 ✓ Corylus 1 cecid dom.  
 4 ~~Salix~~ 13 sp. cecid dom.  
 Total coccid. 8  
 26 cecid. 18 (3 doubtful)  
 16 acarid. 14 (2 doubtful)  
 3 Aphid. 3 (2 doubtful)  
 11   
 38



Cecid. d

8 19 15 4 13 / 57

acard d

3 1 2



Cecid. d

1 1

acard d

2 1 2 1 2 1 2 / 12

4 1 2 2 2 / 12+2

B.D. Walsh

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1) bud & *S. glauca* ✓

16

2) lvs { *S. ovum* ✓

17

*S. ovuluni* " ✓

18

*S. nodus*

19

3) lvs { *S. pomum*

20

*S. desmodoides*

21 is

*S. pumum*

21



Woke 11:00

Wing 24 (diam.)	2	.10
Seal 04		.04
Gall 30, <del>length</del>		.37
Length 1.00		1.23



Willow *Cecidomyia*. Fr  
 ✓ <sup>15</sup> Cec. cornuta.  
 sp. burrowing in trifurcoides stem p. 60.

~~"Cauterance of insect life" p. 60-61~~

~~Superda inornata p. 61. 100. 114. } "cocoon breded"~~

1) ~~shaldor~~ p. 72. 77. 78 bis. 80 bis. ~~near cocoon pruned~~  
 93. 95. 96 bis. 97 bis. 106. 107. 108. 109. ~~not "concrete"~~

*Eura (venenalis)* p. 73. 74 bis 106 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 908. 909. 910. 911. 912. 913. 914. 915. 916. 917. 918. 919. 920.

11) *Cecid. fulviventris*. p. 73. 81<sup>x</sup> 87<sup>x</sup> 88. 91. 92. 93. 95. 96 bis. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 113. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854. 855. 856. 857. 858. 859. 860. 861. 862. 863. 864. 865. 866. 867. 868. 869. 870. 871. 872. 873. 874. 875. 876. 877. 878. 879. 880. 881. 882. 883. 884. 885. 886. 887. 888. 889. 890. 891. 892. 893. 894. 895. 896. 897. 898. 899. 900. 901. 902. 903. 904. 905. 906. 907. 9

~~2. *Cucul. *W. leucorh.* p. 73. 77. 78. 81. 83. 85. 86.*~~  
87. 88. 95. 97. 98. 100. 106. 110. 111. 115. 129.

3) *cead* *rhododes* p. 74, 75 br. 78, 83 ter. 85, 86 br

7 cead. batatas. p. 75. 78. 81 x. 81 bis. 83. 85. 86 bis. 88. 89.

to card. seized p. 75. 76. 83. 89. 92. 113

4 cecid. graphaleoides. p. 76. 77. 90 bis. 95. 98. 99. 109. 112.

5) Cecid. gemma. p. 87. 94 / Inguine 1819 p. 98

12) *cec. orbitalis* p. 90 ~~left off the page~~ p. 97. 98. 100. 101  
cec. 3-fasciata p. 127.

9) *S. Enigma* p. 105. 106. 114x. 116. 117. 122. 126

8) *S. verruca*, p. 123.

8) *S. verruca* p. 122. *S. semen* p. 124, 126  
~~*Trach. S. longifolia* + *S. cydata* (each dr. salt) 110~~  
*Equiset. var. longifolia* + *S. cydata*

*Myrmica*: *ovulorum*, n. sp. (*S. humilis*.)  
*Myrmica*: *ceces*. See D.S. pp. 180, 181, 182

~~Stalwart Jr. C. C. C. variable p. 134~~

*Anthracis pseudochiue* p. 114  
*Hallia alternata* p. 114

*Halluca alternata*, p. 104  
sal. [ramuli] <sup>nodos</sup> p. 105 / Tentured. 1 bis

*Salix rostrata* com. 118 by 125

*Salix rostrata* Com  
*aperda inornata* b.

*S. batatas*? or *S. coccinea*

<del>S. vatalasi, on S. cord</del>	<del>Length 1.00</del>	<del>1.25</del>	<del>clanmanus</del>
<del>il l 18</del>		<del>1.25</del>	<del>ly weh-</del>

oviduch variable p. 11

Synoptical Table. p. 84 1



Willow Cecidomyia. &c  
✓ 15) Cec. cornuta  
burrowing in trifloroides stem p. 60.

{ rhodoides  
graphaloides  
gemmae  
all same  
willow

"Abundance of insect life" p. 60-61

[~~Regia Cecidomyia galls mistaken for Cynips~~  
~~they "imago identical"~~]

~~Saperda inornata p. 61. 100. 114~~ ~~than "cocoons excluded"~~

1) ~~Isobroder p. 72. 77. 78 bis. 80 bis.~~  
~~Eura venenalis p. 73. 78 bis. 80 bis.~~ ~~not "constrictate"~~  
~~112. 126. 135. ovum~~ ~~p. 85 x~~

11) Cecid. fulviventris p. 73. 81 x 87. 88. 91. 92. 93. 95. 96 bis. 97

2) Cecid. trifloroides p. 73. 77. 78. 81. 83 bis. 85. 86

3) Cecid. rhodoides p. 74. 75 bis. 78. 83 ter. 85. 86 bis

7) Cecid. batatas p. 75. 78. 81 x. 81 bis. 83. 85. 86 bis. 88. 89. 91.

6) Cecid. seligera p. 75. 76. 83. 89. 92. 113

4) Cecid. graphaloides p. 76. 77. 90 bis. 95. 98. 99. 109. 122

5) Cecid. gemmae p. 87. 94 ~~ingulinea 181 & p. 98~~

12) Cecid. orbitalis p. 90 ~~left off this page~~ p. 97. 98. 100. 101

9) S. Aeneas p. 105. 106. p. 114 x. 116. 117 bis. 122. 126

8) S. verruca p. 122. ~~10) S. semen p. 124. 126~~

~~trunk S. longifolia + S. cordata (each in gall) 110 x~~  
~~Eura? ovulifera n. sp. (S. humilis.)~~

Inguineous Ceces. See D.S. pp. 180. 184-186

~~Stalensal p. Cecid. variable p. 134~~

Anthracis pseudochiucha p. 114

Halica alternata p. 114

Salix ~~ramulifera~~ p. 125 (Tentred.) bis

Salix rostrata cones (Nebb m.s.)

Saperda inornata p. 100. 61. 114

S. batatas? on S. cordata p. 97 x

oviduct variable p. 85 ✓

Synoptical Table p. 84

double-brooded Cecid.  
Same of Balaninus  
in willow galls Westw. I.  
p. 342



The Dervish in the Eastern Fable claimed to have discovered the language of birds, while to the vulgar their notes ~~had no~~ were mere inarticulate sounds ~~and~~ without passion & without meaning. The Entomologist does not indeed pretend to understand the language of insects, for as they <sup>all</sup> breathe thro spiracles ~~and~~ <sup>or</sup> tracheas their mouths are everlastingly dumb; but from signs & tokens well known to him he can interpret their actions & recognize at a glance what object they are pursuing, whether sport, or love <sup>or wars</sup> or food for themselves, or food for their future progeny or the construction of habitations either for themselves or for that future progeny which they are doomed never to behold. Under every stone, under every clod, ~~even~~ under the most despised substances, there is a little world in miniature opened to his eyes. And there scarcely grows a plant, but what contains in Nature's own hieroglyphs a whole chapter of Natural History written by the finger of the great Author of our being.

— to breed & gather

— bred

to breed & gather

— bred

— bred



2) P. interrupta. Black, stethidium with yellow spots; tergum with yellow spots and bands. Inhabits Pennsylvania.

Antennae dull black brown, first joint polished, piceous at tip; mandibles piceous, black at tip; thorax with a spot each side before three in a line between the origin of the superior wing, yellow; scutellum with a yellow, transverse line. wings hyaline, costal margin fuliginous; meta-thorax at the tip each side with a double longitudinal, yellow spot; pleura with a vertical, yellow, oblong spot beneath the origin of the superior wing; tarsi pale piceous; tibiae anterior pair blackish-piceous, posterior pairs pale piceous; thighs black; tergum a little iridescent; first segment with a band abruptly and widely narrowed above, second segment



## Cure for Drunkenness.

*To the Editor of The N. Y. Tribune.*

SIR: I have copied this "Cure for Drunkenness" from another print, and send it to you with the request that you will publish it in THE TRIBUNE, for the benefit of all victims to this prevalent vice.

*New-York, July 22, 1865.*

There is a famous prescription in use in England for the cure of drunkenness, by which thousands are said to have been assisted in recovering themselves. The prescription came into notoriety through the efforts of John Vine Hall, commander of the Great Eastern steamship. He had fallen into such habitual drunkenness that his most earnest efforts to reclaim himself proved unavailing. At length he sought the advice of an ancient physician, who gave him a prescription which he followed faithfully for seven months. At the end of that time he had lost all desire for liquor, although he had many times been led captive by a most debasing appetite.

The prescription, which he afterward published, and by which so many other drunkards have been assisted to reform, is as follows:

Sulphate of iron, five (5) grains; magnesia, ten (10) grains; peppermint water, eleven (11) drachms; spirit of nutmeg, one (1) drachm; twice a day.

This preparation acts as a tonic and a stimulant, and so partially supplies the place of the accustomed liquor, and prevents that absolute physical and moral prostration which follows a sudden breaking off from the use of stimulating drinks.



after a few weeks, months, and in some cases years, it is subject to paroxysms of darting or lancinating pain. The pain increases from time to time, and frequently extends to the lower point of the shoulder-blade; sometimes about this stage of the disease, the arm is entirely useless—the nipple frequently becomes retracted, exuding a thin, bloody discharge.

After a time, the tumor adheres to the skin and the parts beneath it, so as to become fixed and immovable; then it ulcerates and forms an open cancer. The movable lump or tumor, the lancinating pain, the retracted nipple, are never failing symptoms of Cancer in the Breast.

Every person laboring under the above symptoms may at once know their real condition.

## THE DANGER OF NEGLECTING CANCER.

I was consulted by a lady in June. I found in the right breast, under the skin, a small tumor or lump, not as large as a common pea, perfectly movable—no redness or tenderness.

I advised the treatment. She declined. In September she called again. Then the disease had assumed a constitutional nature—one so much so that it was impossible to relieve her, and death followed in less than three months. At the time she first visited me, it could have been cured in a few days. Every person who has any of the symptoms of cancer should attend to the case at once, and in no case pinch or press the tumor with the hand. Use no stimulating applications. Cold water or ice in a bladder, applied to the part, will retard its growth; and this is the only means that will do so short of my treatment for radical cure.

**CANCER of the FACE and NECK IS ESPECIALLY**



\*[Note] As an example of the very variable nature of the specific characters in *Cecidomyia*, I may quote the following. Solow describes *C. solidaginis*, <sup>from the dried specimen</sup> ♂ & ♀ without however stating the number of specimens used by him. On comparing his description (Dipl. N. S. pp. 194-5) with 2 ♂ & 7 ♀ <sup>(dried)</sup> which I bred myself from the same gall, I find the following <sup>variations</sup> discrepancies:— 1<sup>st</sup>. The abdomen ♀ has ~~—~~ "distinct black & red transverse bands" but is only in 2 ♀♀, in the other 5 it is blackish immaculate. 2<sup>nd</sup>. The ♂ antennae (1 specimen <sup>the other 4</sup> ~~are 20~~) ~~joined~~ have only 18 flagellar joints, instead of "20 or 21." 3<sup>rd</sup>. The oviduct, instead of being "of very moderate length & but little pointed" varies from  $\frac{1}{8}$  -  $\frac{2}{3}$  as long as the rest of the abdomen, & in the latter case is much attenuated at tip. 4<sup>th</sup>. Instead of the legs ♀ being "black without white reflection", they are ~~blackish~~ <sup>blackish</sup> dull rufous immaculate, except in two ♀♀ where they are blackish above & at tip. 5<sup>th</sup>. Instead of the legs ♂ being "black with a white reflection on the tibia & tarsi", they are so indeed in one ♂, but in the other 5 they are yellowish <sup>hyaline</sup> immaculate, except the tarsi. — We may observe here, that the structure of the



♂ antennae <sup>of this species</sup> differs remarkably from that of all Willow Gall-gnats known to me, in the pedicels, being as long as the spherical part of each joint, instead of only  $\frac{1}{2}$  as long; & in the last 3 or 4 joints tapering almost to nothing, agreeably to the remark of Loew that "the uppermost joints are much smaller than the preceding." The verticals, which are said by Loew to be "very long", are scarcely as long as two of the complete joints from which they spring, & differ from those of all Willow & gall-gnats known to me in being much more scanty, there being only 2 or 3 or 4 hairs to a vertical, instead of a considerable number. The <sup>pedicels</sup> antennae ♀ are globular to the extreme tip, so which Loew describes as "rather long", that they can be <sup>of the greenish brown</sup> instead of being black so as to appear blackish. <sup>speckled</sup> <sup>marked with</sup> <sup>black</sup> <sup>when 29 they</sup> <sup>are almost immaculate.</sup>

18-5 usually moniliform & terminally cylindrical as in all the Willow Gall-gnats.



A) The believers in the Derivative Origin of Species hold that new species have gradually been produced in the course of millions of years by the Law of Inheritance, or the well known breeder's principle that like produces like. As a general rule any remarkable variation in a given species is eliminated by intercrossing with normal individuals, but in particular cases, such <sup>for example</sup> as those where the variation affords any peculiar advantage to the individual, <sup>or where individuals are isolated from others by any means from their fellows</sup> it is propagated from generation to generation & is regulated by the same great Law of Inheritance. In other words, <sup>the Law of</sup> Inheritance as a general rule, keeps species <sup>to one invariable standard</sup> from varying; but in particular cases it causes them to deviate from it. But, says Agassiz, "this statement itself implies a contradiction, for it assumes that the same influences prevent & produce changes in the condition of the Animal Kingdom." (Meth. St. p. 281) So that if any one says that the wind sometimes melts ice & sometimes prevents it from melting, "the statement implies a contradiction, for it assumes that the same influences prevent & produce changes." And if another man says that the action of insectivorous insects upon plant-feeding insects tends, as a general rule, to keep them within due limits, but in exceptional cases causes them to become exorbitantly numerous, this statement also "implies a contradiction", because it assumes that the same causes sometimes produce different effects.

Because it has been satisfactorily, & certainly most beautifully, demonstrated by Agassiz that certain coral-making Radiata have not varied <sup>from the normal type</sup> in the last 70,000 years, it by no means follows that all other species in the Animal Kingdom have been equally invariable in all time. As well might we argue that because certain butterflies are notoriously constant in their coloration, therefore all other species of butterflies are equally constant. Whereas we know that in certain species it is difficult to find two individuals exactly alike.



Let us illustrate my views on the value of specific characters by an example.  
The Negro differs from the white man in having woolly & <sup>crisp</sup> hair, a black skin, projecting lower jaw, thick lips, a flat nose <sup>broad & thin</sup>, & a projecting heel.  
But individual white men occur with each of these peculiar characters: they are <sup>none of them</sup> ~~not~~ therefore, perfectly constant characters. <sup>pigmentation</sup> If we knew nothing of the perfect facility with which the negro intercrosses with the white man, & the perfect fruitfulness of the offspring of such intercrosses, we might safely conclude that the negro is not a distinct species, but a mere variety of the ~~Human~~ *Homo sapiens*. [Species of *Cecidomyia*]



*galphus curculionis* p. 47

Sep. 4 "Curculio" all dead p. 49

*Stencha hirsuticornis* N.C. p. 50

Larva of *Ortho-*  
*soma cylindricum*  
p. 50

Enemies of Col. Pot. Bug p. 51

Iowa counties inf. by grasshoppers p. 52

32 Soap to kill barklice applied p. 52

Results of spring experiments p. 53 - 54

*Pemph. pyri* p. 56. 59 x 60 bis

Pine barklice p. 55

Plum jars enameled p. 57

Salt kills cabbage lice p. 58

soot — cutworms —

New York weevil bad on pear — on rose p. 60

No *Phyc. rubula* South p. 59

\* *Urticifolia* galls p. 61

*Cetonia* under on peaches p. 61

starving wireworms p. 62

\* Brazil *Typonylus* habits p. 63

+ *Asp. couch.* p. 65 x

+ *Phytocoris* linearis p. 66

+ *Asp. couch.* p. 66 — 7. & p. 68 bis 74 x 77 x 78. 79 x 81 x

+ Frost kills aphids p. 68 x 82 x 83. 84. 85. 86 x 90-1.

\* *Corimelaena pulicaria* p. 68

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